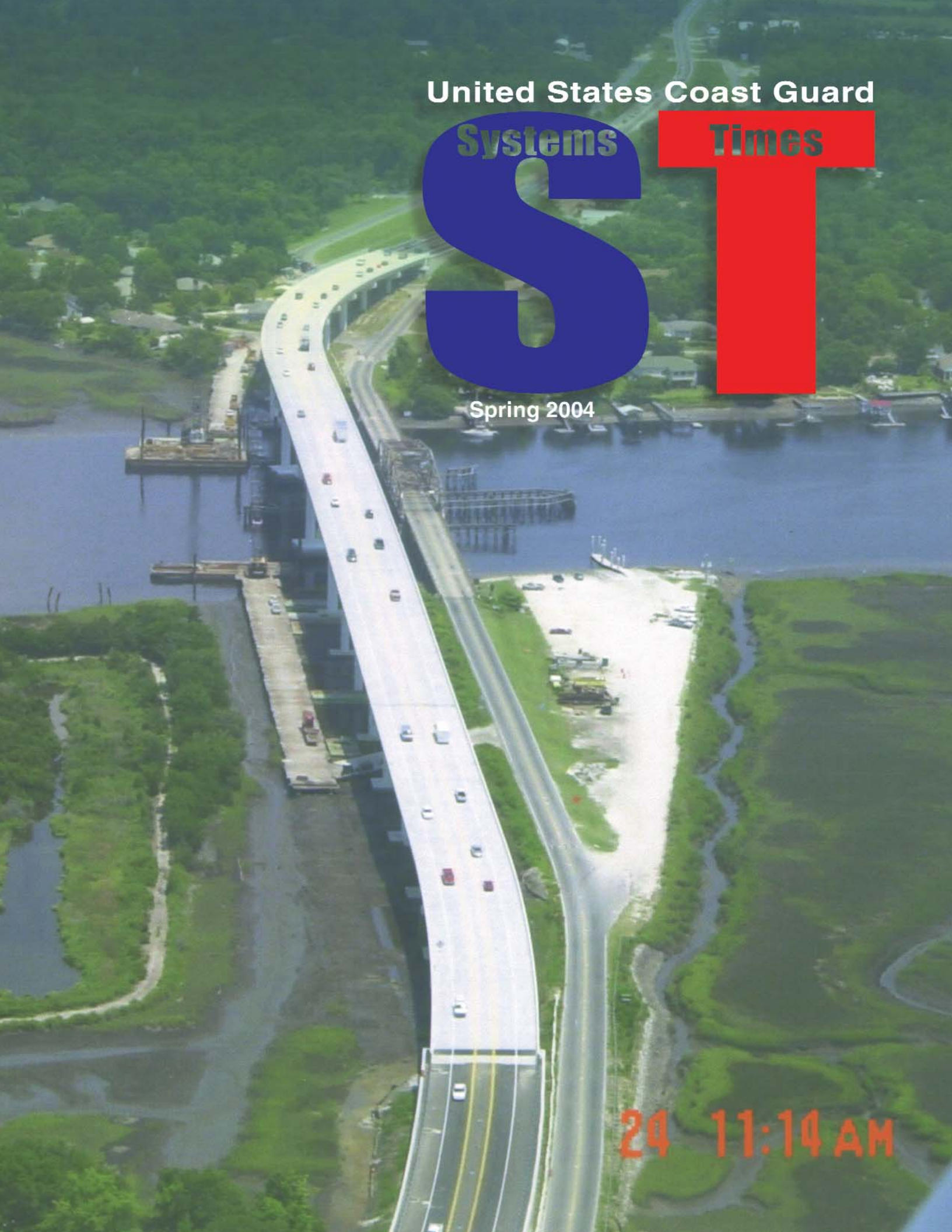

United States Coast Guard

Systems Times

Spring 2004

U. S. Coast Guard Systems Times

Working Today to Challenge Tomorrow

U. S. Coast Guard Systems Times

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Article and Photo Submissions:

Articles should be about 500 words long; however, C4 and engineering specific articles can be up to 2,000 words. To have your article considered for publication, photo(s) must accompany each article. Articles can be submitted by FedEx in hard copy and/or in Microsoft Word on a 3.5 disk, CD, or e-mailed electronically. Please submit original photographs and graphics. All slides, photos, graphics and illustrations should be in color where possible. Please include **by-line** when submitting article Let us know if you want your photos and graphics returned to you. Submit inquiries, letters, articles, and photographs to:

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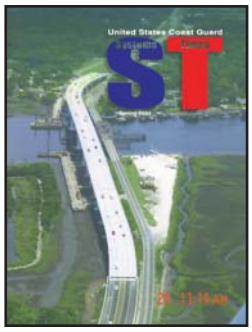
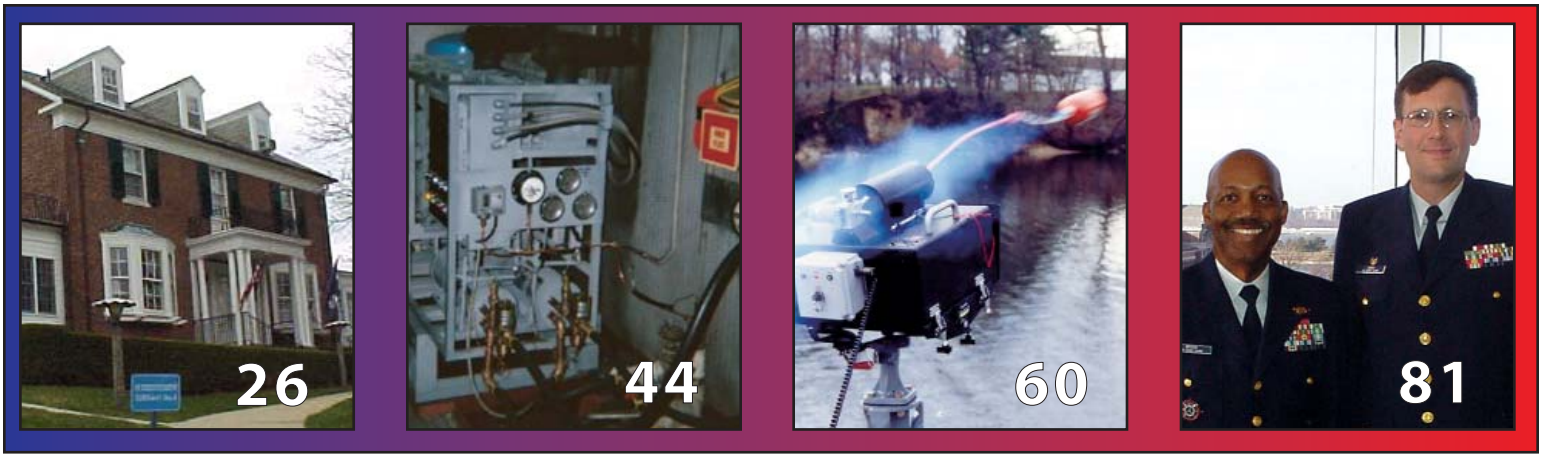


***On the Cover**: An aerial view of the New John F. Limehouse Bridge in South Carolina, a joint U.S. Coast Guard and South Carolina Department of Transportation project. The channel is open to navigation. Read all about it on page 14.*



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***On the Back*: Seattle, Washington -- Seaman Travis Martin patrols Elliot Bay aboard a 41-foot utility boat from Station Seattle as a Coast Guard HH-65 Dolphin helicopter from Air Station Port Angeles patrols overhead. USCG photo by PA3 Kurt Fredrickson.**

From the Chief Engineer

Greetings;

And welcome to the Spring 2004 issue of *Systems Times*. Continuing our emphasis on the Commandant's Direction of People (Intellect), Stewardship (Information) and Readiness (Infrastructure), I want to make a few comments about our System's state of Readiness as reflected in its Infrastructure. Our assets (cutters, boats, aircraft and facilities) are the tools of our trade. Without them, we cannot accomplish our various missions that keep our shores and mariners safe. Our efforts therefore must be guided by focusing on sustainability and performance. Sustainable success will not be accomplished at the detriment of our people or the long-term health of our organization. We must ensure we have the requisite resources, tools, time, authority and knowledge necessary to acquire, deploy and maintain the system infrastructure so critical to the Coast Guard accomplishing its missions. As we continue our investments to recapitalize our Deepwater assets, we must remain vigilant in executing our near-term legacy assets support strategy to ensure we retain our current capabilities. Clearly, the post-9/11 operational environment has strained our people and our assets beyond previous levels. I want to commend you for your herculean efforts in your responsiveness and creativity in sustaining our assets and in ensuring their current and future ability to meet our Service's critical mission demands in a post 9-11 environment.

I also want to comment on some important People initiatives. First, Competitive Sourcing. Competitive Sourcing a prominent part of the President's Management Agenda. The Coast Guard is currently developing its Competitive Sourcing Plan (out to 2008) in response to existing requirements. I can assure you that it is based on an open and collaborative process that is focused on our people and our mission. I invite you to get the facts on this issue by visiting our intranet site at http://cgweb.comdt.uscg.mil/cg8/competitive_source. This site is intended to provide you with facts, information and insight into this government-wide initiative and its service-wide implications. Our intent is to make sure you get factual answers to your questions on this very important issue.

Second, I want to take this opportunity to encourage you to continue investing in the intellectual growth of our people. ALCOAST 070/04, released on 18 February, contains a wealth of information pertaining to 13 full-time resident programs offered by Systems and C4IT Directorates. These programs range from Associates to Master's degrees, and are open to a wide range of personnel from enlisted to officer. Several resident and non-resident courses offered by the Naval War College, the Industrial College of the Armed Forces and other institutions are available to our civilian personnel. Information on available training for our civilian personnel is located at http://www.uscg.mil/hq/cgpc/cpm/trng/trngcat.htm. Additionally, there are opportunities for distance learning via the Internet, and availability of tuition assistance to help defray the cost of off-duty education. In our current fast-paced and ever changing environment, we must be actively engaged in continuous learning to remain relevant.

Finally, a joint Systems and C4I (Command, Control, Communications, Computers and Information Technology) Directorates training and education program was unveiled recently. The program provides guidance to ensure that all personnel receive the training and education necessary to effectively fulfill our mission and enhance our personal professional growth. I charge each of you to map out and track your individual professional development plan to sustain and improve your effectiveness.

Again, thank you for your unceasing efforts and for your tireless service to the Coast Guard and our nation. Clearly, it is your efforts every day that keeps our Coast Guard Semper Paratus!

Erroll M. Brown RADM, USCG
Assistant Commandant for Systems
“Chief Engineer”

Command Center Recapitalization Project (CCRP) (C2CEN)

Over the past decade, the Coast Guard has consolidated much of its Operational and Intelligence coordination assets into centralized Command Centers. In recent times, the tasking assigned these units has increased dramatically, due in no small part to the Coast Guard's involvement in highly visible missions, such as Homeland Security (HLS) and Maritime Domain Awareness (MDA). A downside to this rapid deployment, however, has been limited standardization and a haphazard approach to systems support.

The Command Center Improvement Study Report (Released in 1999) sparked a flurry of initiatives to address the issue, which were later consolidated into the Command Center Recapitalization Project (CCRP). Sponsored by CG Headquarters Office of Command and Control Architecture (G-OCC), the Command and Control Engineering Center (C2CEN) has taken the lead in transforming these original initiatives into action. When C2CEN completed the installation of the Global Command and Control System (GCCS-J) in all the Area, District and Section Command Centers in Fiscal Year 2003 (FY03), the first tangible product of this CCRP was realized. This equipment will become the cornerstone for several future initiatives designed to unite each Command Center into an integrated Command Center Network using a conceptual network display or Common Operational Picture (COP).

The second product of the CCRP is the Video Display System or VDS. As the number of Command Center watch stander stations has increased (a result of increased mission requirements), it has become increasingly difficult for operational commanders to get quick, overall "snapshots" without polling multiple stations, a situation that often negates the value of real-time information received. As part of the Command Center's arsenal of tools, VDS will provide single point display of multiple, situational data displays based on current mission, operational need or personal preference. It will also allow watch standers and decision makers to view the same information simultaneously on a large scale. When infused with the previously described COP display, the Command Centers will be well outfitted to address emerging Coast Guard and National mission requirements. The VDS systems will be installed throughout FY04 (the prototype/baseline system is currently installed at C2CEN).

Next on the radar scope for the CCRP project is the implementation of the latest iteration of GCCS-J, version 4.X, which will allow expanded data throughput and improved usability. This software is currently in the final stages of testing at DISA and is tentatively scheduled for release late summer of 2004. The CCRP Point of Contact is LT Baronas at (757) 686-4156.

Alternative Fuel Survey and Design (G-SEN-3)

The future smells like french fries. The Office of Naval Engineering's Environmental Division (G-SEN-3) is partnering with the Engineering Logistics Center (ELC), the Coast Guard Academy (CGA) and the Naval Air Systems Command (NAVAIR) to develop a standard for the use of Biodiesel on Coast Guard vessels. Biodiesel can be made from any fat or vegetable oil, such as soybean oil. It's nontoxic, biodegradable and works in any diesel engine with few or no modifications. Although Biodiesel contains no petroleum, it can be blended with petroleum diesel at any level, the most common mixture being "B20," which is 20% Biodiesel and 80% diesel. Biodiesel is the only recognized alternative fuel that meets the Environmental Protection Agencies' (EPA) rigorous Health Effects testing as required by the Clean Air Act. Among the other positive traits of Biodiesel is the reduction of particulate matter in emissions, 80 to 90% reduction in potential cancer causing compounds called Polycyclic Aromatic Hdyrocarbons (PAH) and nitrated PAH, and reduction of unburned hydrocarbons that are a contributing factor to smog and ozone. A common side effect of Biodiesel is the familiar smell of french fries when burned.

This joint effort is part of a capstone senior design project for six Mechanical Engineering First Class Cadets at the Academy. Their efforts will focus on source of supply, warranty issues with current Coast Guard engines and performance impacts on a marine diesel generator located in the Academy's Power Lab. Fuel hoses, gaskets and seals will be evaluated by an independent lab to ensure they do not deterio-

rate when subjected to Biodiesel.

Biodiesel has become a common word throughout the military with numerous branches and installations utilizing the fuel for their ground fleets. Naval Base Ventura County even creates Biodiesel from recycled cooking oil on the base. The Coast Guard would be the first service to use Biodiesel in the marine environment. However, significant hurdles must be addressed before the Coast Guard is ready to use Biodiesel in the fleet. These hurdles include cold weather storage, cold weather operability, emulsification in water and compatibility between fuel loads.

In the near future, Biodiesel will provide the Coast Guard with an alternative fuel source that helps reduce our dependency on foreign oil while reducing the impact on our environment.

G-SEN-3 Points of Contact are LT Jon Baker at (202) 267-1998 or LTJG Andy Goshorn at (202) 267-2003.

Use of Bioremediation Products on CG Vessels
(G-SEN-3)

There are many bioremediation products on the market that utilize aerobic microbes, commonly referred to as "bugs," to consume petroleum products. Use of microbial-based cleaners has proven effective for removing sludge buildup in hard to reach bilge pockets, significantly reducing oil content in oil-water holding tanks, mitigating oil spills and in various other situations where removal (or in this case, consumption) of petroleum products is desired.

We are looking to endorse the use of bioremediation products as being a safe and effective alternative for use in specific applications aboard Coast Guard vessels. The Navy performed a health hazard assessment during use of the "bugs" in a bilge cleaning evolution on Coast Guard Cutter (CGC) NORTHLAND to ensure personnel using such products would not be subjected to any adverse health risks. The National Institute for Occupational Safety and Health (NIOSH) analyzed the results and concluded that there is a "low potential" for adverse health effects among personnel who use microbial-based cleaners during bilge and other cleaning processes. We are awaiting concurrence from the Navy Environmental Health Center (NEHC).

Coupon testing is underway in an accelerated lab environment to evaluate these biological cleaners to ensure they will have no negative impact on vessel machinery materials, such as tank walls, bilge plating, coatings, gasket materials, oil content monitors, et al. If this evaluation is successful, we will soon be able to authorize and recommend specific, affordable bioremediation products for use on CG vessels.

G-SEN-3 Points of Contact are LT Jon Baker at (202) 267-1998 or LTJG Andy Goshorn at (202) 267-2003.

210 Communication Workstation Upgrade
(TISCOM)

The Telecommunication and Information Systems Command (TISCOM) was directed to provide a communication system upgrade for all fourteen 210' Reliance class Medium Endurance Cutters (WMECs), and the three Mature class WMECs in District 17. In an effort to upgrade information systems and improve data communications on the Mature and Reliance class WMECs, TISCOM replaced the legacy Unisys Standard Workstation II (CGSWII) computers (ROP, LOP1 and LOP2) "green screens" with three Windows based Dell 1650 rack-mountable communication workstations.

The first communication work station provides High Frequency Data Exchange (HFDX) connectivity. HFDX is a secret-high record message delivery system using HF transceivers, a Rockwell Collins MDM-3001 HF modem and a KIV-7HSb encryption module. HFDX uses file compression, error correction and improved baud rates to rapidly and reliably deliver record message traffic between ship and shore. It also provides HF e-mail capabilities between any two HFDX equipped units. Communications Area Master Stations Atlantic and Pacific (CAMSLANT & CAMSPAC), Communications Station (COMMSTA) Kodiak and Maritime Security (MARSEC) all service HFDX cutters.

The new Radio Teletype Emulation (RTE) communication workstation integrates the cutters' legacy data circuits, sustaining their ability to copy the Navy fleet broadcast via the Enhanced Portable Satellite Broadcast Receive Terminal (EPSBRT) or via High Frequency (HF) radio using Dovetron modems. The RTE communication

workstation also enables the cutters to send and receive record message traffic via satellite teletype (using MILSATCOM LST-5 transceiver) and via HF radio teletype using Dovetron modems. The RTE communications work station is able to sustain two separate communications circuits simultaneously and send or receive record messages classified up to Top Secret.

The third communication work station provides Satellite Data Exchange (SDX) connectivity. SDX is a secret-high record message delivery system using a dial-up circuit via the International Maritime Satellite (INMARSAT) Mini-M commercial satellite transceiver (underway) or a v.92 dial-up modem (in port), through a KIV-7HSb encryption module. SDX is capable of providing record message delivery underway and replaces Secure Data Network (SDN) for delivery of classified messages to cutters in port.

All of the hardware upgrades were completed as of 1 February 2003. However, the SDX system only recently received an Interim Authority to Operate from the Designated Approval Authority (DAA). TISCOM will configure and distribute SDX communications work station hard drives to each 210' and mature class WMEC this spring, as well as revisit cutters to train crews on the operation and maintenance of the SDX system.

HFDX has already significantly improved record message delivery speed-of-service and reliability. The improvements have facilitated OS rate cross training between Combat Information Center (CIC) and radio room watch standers. The SDX system's automation and easy-of-use should further improve data connectivity for the Relliance and Mature class WMECs.

Two Copernicus Award winners named from TISCOM (TISCOM)

LCDR Stan Balint and **LT Pete VanNess** were selected as Copernicus Award winners for 2003. The Copernicus Award was established to recognize individual contributions in the disciplines of C4I, information systems and information warfare. The awards are sponsored by the Armed Forces Communications and Electronics Association (AFCEA) and the U.S. Naval Institute, and are presented each year in San Diego.

LCDR Balint was recognized for his critical role in the implementation of the Coast Guard's Secret Internet Protocol Routed Network (SIPRNET) Management Office (SMO). The SMO centralizes the management of all efforts to deploy, manage and support Coast Guard connectivity to the Department of Defense's (DoD) classified network; connectivity that has proven to be operationally critical in the post-9/11 environment. LCDR Balint spearheaded efforts to implement, document, and support the present and future Coast Guard classified infrastructure.

LT VanNess was recognized for exceptional performance of duty while serving as the lead engineer providing message delivery solutions for Coast Guard cutters between 82' and 225' in length. LT VanNess personally led the team that installed the High Frequency Data Exchange (HFDX) system on board 25 cutters in Fiscal Year 2003, providing more reliable record message delivery at nearly 700 times the speed of the system it replaced. In addition, he spent time in-theater to install critical message delivery systems in four Coast Guard Patrol Boats operating in the Persian Gulf in support of Operation Iraqi Freedom.

Coast Guard Standard Workstation Automatic Update System (TISCOM)

To maintain a secure, stable and robust computing system, and per Department of Homeland Security (DHS) and Department of Defense (DoD) guidelines, the Coast Guard must remain up-to-date and current with all Microsoft recommended patches (to our current Operating System (Windows XP), Office Suite (Office 2000) and associated Plug-Ins) and Symantec Virus Definitions. We must also maintain the very latest Anti-Virus software posture to successfully detect and protect against the most current viruses, potential hackers and other security threats.

Application of these updates and changes is currently a manual and time-consuming process. When patches, software upgrades or virus definition updates are released, a Telecommunication and Information Systems Command (TISCOM) tech-

nician manually downloads the files, tests them, engineers a patch that will work in our environment, develops documentation on how this patch/software should be loaded, and, once approved, releases the patch/upgrade. Once released the patch/software is distributed via Tech Bulletin and the Electronic Systems Support Units/Electronic Systems Support Detachments/ (ESUs/ESDs/CSMs) apply it to the necessary machines by scheduling the upgrades to install in an unattended more or actually running a routine on individual computers.

This is a very time consuming process, and despite our best efforts, critical patches can take weeks to get deployed. It is also a very manpower intensive process both at TISCOM and in the field. Many staff hours are spent engineering and installing these patches. Virus definitions get checked and applied via LOGIN scripts, so they only get updated when an end-user actually logs off and logs back on. This is normally only a once per day occurrence (and some users may go several days without logging off), so virus definition updates lag behind.

Home systems receive these types of patches automatically via Microsoft's Software Update Services (SuS), Symantec Anti-Virus Live Update and Symantec System Center (SSC). The patches and virus definitions are applied in a very timely fashion and with very little intervention by end user. TISCOM is engineering the Coast Guard Standard Workstation Automatic Update System (CGSWAUS) along this same principle.

Our system places a server at TISCOM that will serve as the Root Server for the CGSWAUS. It will serve as the Microsoft SuS and Symantec SSC host server for the Coast Guard. TISCOM will continue to monitor Microsoft's System Update and Patch site and Symantec's Virus definition and software update sites. TISCOM will download and test all patches and updates posted to these sites. After testing, we will place them on the CGSWAUS Root Server at TISCOM. This server will automatically send these updates files to the next level of CGSWAUS Servers (16 distributed servers) located at ESUs and major units. All CG Standard Workstations will have a patch applied to them that enables the Auto-Update function in Windows, but instead of looking at Microsoft's or Symantec's sites for updates it will look at the CGSWAUS Server in their Aera of Responsibility (AOR). They will normally do this on a non-work hour scheduled basis. When new patches, virus definitions or software are present on the server, the updates will get applied from one of the sixteen servers to the Work Station automatically without any ESU, ESD or end-user intervention. This system will also watch for times when laptops used by Road Warriors are on the network. When they are on the network, it will automatically detect them and apply all updates automatically.

This system will allow for more timely application of Microsoft System Updates, Microsoft vulnerability patches, Norton Anti-Virus Virus Definitions and Symantec System updates. This will improve the Coast Guard's overall security posture. It will also allow these updates to be applied with little or no intervention by the ESU technicians, freeing them up to do other things.

TISCOM Point of Contact for all CGSWAUS issues is LCDR Tom Norton (703) 313-5712 (tnorton@tiscom.uscg.mil).

Bridging Strategy Project (BSP) (YARD)

The Yard continues work on the Bridging Strategy Project (BSP) with the lift of the Coast Guard Cutter (CGC) KEY LARGO during the week of 1 December 2003. The Cutter is the eighth 110' Patrol Boat to undergo BSP. The hull sustainment project began at the Yard in spring 2002 with the Cutter FARALLON serving as the BSP prototype -- Cutters CUSHING, CHINCOTEAGUE, SAPELLO and DRUMMOND followed. The Yard is currently working on the Cutters MAUI, SANIBEL and KEY LARGO. The goal of the BSP is to eliminate hull corrosion and add another ten years of service life to each craft. The Yard anticipates concluding BSP on the CGC KEY LARGO in June 2004.

by James Yacobi
Chief, Office of Systems Planning

No, not September 11th but the numbered buttons on the phone. Who are you gonna call when things go awry on the water? Of course you call the Coast Guard …. America's nine-one-one for things wet.

Today, whether it is somebody or some thing suspicious in a port, a spill, an overdue or missing boater, a fire underway, real bad weather, a ditched plane, migrants in leaky boats or whatever -- Joe and Jane Public picks up the phone and dials 911 or gets on Channel 16 to call the Coast Guard.

It is a little different than years gone by when we were always good for a couple of gallons of gas or diesel or a tow back to the harbor. We didn't contract non-emergency towing out, it was privatized and that was a good thing for all concerned.

When it comes to safety or security though, on the water, the Coast Guard is the "go to guy."

Today, you get a Coastie who answers the phone promptly and politely and gets you started on the path to fixing whatever is wrong. That Coastie may be a BM or an MK or whatever. The bottom line is they understand you need help and they become part of the solution because it is their nature and our culture.

If the case merits it, the Search and Rescue (SAR) alarm sounds at the station and the ready boat crew is pounding down the dock, jump onto the boat, get underway and race to the scene. Our deal is that we do safety and security -- not unlike the local fire and police. We've done them for over two hundred years and we are good at it. Young men and women come to us with an understanding that they will be entrusted with keeping people (and our nation) safe and secure.

On the other hand, lets look at tomorrow … or at least a possibility for tomorrow. Government is currently entertaining a renewed push to contract out those services that might be commercially available. If these efforts materialize, the Coast Guard may not be the one responding to emergency calls in the future. Commercial enterprises are most likely to assume this role.

That BM3 or FN/MK3 answering the phone is a part of Team CG … an integral part. They have had their turn on the ready boat crew and will again. We may well need to contract out or outsource or even privatize some of the things we currently do … it is good stewardship and sound business.

There are a few things I want done by the expert … anything safety or security. If I have need to dial 911, I want professionals to respond. ST

Need more information on this subject ... go to the second of three related articles found on page 24.

ET "A" School: Times -- they are a changing.

by LTJG Raina O. Clark
USCG TRACEN Petaluma

Since the Joint Ratings Review (JRR) curriculum unveiling in January 2003, ET "A" School has dealt with changes in course content, focus and delivery while managing dramatically increased student throughput. The goal at Training Center Petaluma's ET "A" School is to provide competent, confident technicians to the field as efficiently as possible. By delivering just-in-time, billet oriented training, ET "A" School is meeting this goal as well as the Coast Guard's all time high demand for Electronics Technicians (ET).

It's not just what is being taught, but how it's being taught that has changed. Prior to JRR, all ET "A" School students received identical instruction using a structured, seven-unit curriculum. Four units of core electronics theory covered Direct and Alternating Current and Analog and Digital circuits. The remaining three units were a combination of communication and navigational specific systems training.

The post-JRR course is now separated into two sections -- core electronics and three separate strands. The JRR curriculum development team revamped the core electronics curriculum to be the foundational learning, common to all three strands and prerequisite to more advanced training. The team divided the remaining curriculum into three specific, performance-based strands: Communications (COM), Navigation (NAV) and Tactical Warfare (TAC). Each strand provides vital, billet-oriented training.

To a lesser extent, the JRR development team also modified the course content. This included expanding the coverage of some blocks of instruction available in the Nida® computer-based training package, including the prerequisite knowledge for the TAC strand. The pre-JRR, group paced ET "A" School was 19.8 weeks long. With the revised curriculum, the average "A" school student's time in training is 24 weeks.

Other changes include, grouping of the "practical" competencies into a separate unit called "core practical." Core practical consists of administration and supply with CMPlus, practical soldering and rate specific safety requirements. Core practical is extremely beneficial in bridging the gap between some of the theory of the core curriculum and the more performance-based, hands-on strands.

Students master basic electronics in the core curriculum using Nida Corporation's off-the-shelf, computer-based courseware and trainers. The Nida system, incorporated in ET "A" School since 2000, is flexible and can be changed to meet the school's needs. Local course designers can add their own test questions, change the sequence of material and even rewrite portions of the curriculum. Because the Nida software is expansive, covering more material than ET "A" School currently uses, there is also room to grow if needed.

Each student in the core curriculum is equipped with a Coast Guard Workstation; a Nida trainer consisting of the Nida platform with circuit card set; and test equipment, including a function generator and frequency counter; oscilloscope, as well as digital and analog voltmeters. The Nida trainer interacts with the computer-based courseware accessed through the workstation. Students insert designated circuit cards to perform hands-on labs and troubleshoot actual electronic circuits.

During core practical, the last portion of the core electronics curriculum, students receive orders and move on to one of three strands depending on the billet requirements of their post-graduation assignment. The "A" School staff works closely with the ET Assignment Officer to ensure the needs of the field are met

on time. A few students also have the opportunity to troubleshoot, perform PMS and complete electronics supply tasks in Petaluma's ET Shop, if there is a scheduling delay between completing the core curriculum and beginning their strand course.

In the COM, NAV and TAC strands, students troubleshoot specific pieces of equipment. The COM strand covers the GSB 900 and the Harris Receiver, and the NAV strand works with the 69 Radar and KDF 538. The TAC strand covers some quals incorporated from the previous Fire Control Technician (FT) rating. TAC strand students continue to use Nida, just as the former FT "A" School did, to learn additional electronics theory not covered in the core curriculum, such as "syncros and servos" and motors and rotating machinery.

ET "C" schools remain largely unaffected by JRR and continue to serve unit specific needs. For example, Tactical ET "A" graduates continue their strand specific training at Training Center Yorktown where they attend "Ordnance on Target" training before continuing with specific "C" school weapons systems training. These systems include MK-92 Fire Control radar System, MK-15 CIWS, SLQ-32 and IFF Interrogator.

Though it hasn't happened yet, some Electronics Technicians from the field will return to "A" school to take additional strands if their future assignments require it. Petty Officers may share a classroom with unrated "A" school students. Master Chief Petty Officer John Revey, ET "A" School Chief, sites this as "a wonderful opportunity for fleet returnees to mentor our 'A' school students."

In addition to ET "A" School's course content and format changes, Training Center Petaluma has instituted personnel and infrastructure changes to meet the increased training demand. Information System Technician (IT) "A" students complete units one through three of the ET "A" core curriculum before segueing into an exclusively IT "A" curriculum. In fiscal year 2002, the throughput for ET and TT (precursor to the IT rating) "A" Schools was 155 and 42 respectively. In fiscal year 2003, 240 students attended ET "A" School with an additional 70 TT/IT "A" School attendees. Throughput is expected to increase to 300 ET "A" School students and 224 IT "A" School students in fiscal years 2005 and beyond.

To accommodate the additional throughput, three active duty and seven contract civilian instructors have been fully integrated into the staff to maintain the same instructor to student ratio. A temporary 50,000 square-foot modular building was constructed and outfitted at the Training Center to provide classrooms, labs and office space to meet the increased training demand.

A further challenge in the midst of these changes is to keep both the "A" and "C" school curricula up to date as new electronics equipment is installed in the field. "Because the Coast Guard's electronics equipment is becoming out of date more quickly, ET 'A' School must focus on integrated systems. The staff is always eager to work with program managers and project officers to develop curriculum and stand up training [as needed] for new equipment," says MCPO Revey.

During the past year, ET "A" School has faced many obstacles, yet some of the greatest challenges still lay ahead. The "A" school curriculum is currently being overhauled to reflect an even greater emphasis on relevant, hands-on training. "Our goal is to graduate competent and confident technicians and the best way to accomplish this is to maximize practical troubleshooting experience," says MCPO Revey.

Every lesson of the Nida courseware is being reviewed for relevancy. Each block of instruction will soon include an example with actual operational scenarios and hands-on, performance-based labs using equipment encountered in the field. The ET "A" and "C" School staffs are teaming up to draft these scenarios as many of these labs are performed with equipment from the various "C" schools. Grading requirements are also changing to reflect the increased emphasis on practical knowledge as opposed to isolated theory.

"These people coming out of ET 'A' School are exposed to much more than we ever saw in school," says Chief Warrant Officer Braden Brazier, an ET "A" graduate of 1985, former ET "A" School instructor and current Electronics Material Officer for Petaluma's Electronics and Telecommunications branch. As of January 2004, the post-JRR ET "A" School has graduated 24 students from the TAC strand, 21 students from the COM strand and 27 students from the NAV strand.

DHS Environmental Forum:

On October 28th and 29th, 2003, Environmental Management Division (G-SEC-3) sponsored the first annual Department of Homeland Security (DHS) Environmental Forum at the Ronald Reagan building in Washington, DC. It was the first gathering of the 22 agencies new to DHS and proved to be a great vehicle for addressing and discussing common environmental issues, past successes and failures, and future initiatives. Numerous speakers from a variety of fields addressed topics ranging from Environmental Management Systems to Small Arms Firing Ranges to training on the National Environmental Policy Act. Presentations were specifically chosen for their applicability to all entities making up DHS and all were followed with insightful and helpful questions from participants attending in person and virtually through the website.

A pioneering feature of the Environmental Forum was the 'green' meeting space that allowed participants to attend the two-day conference virtually if they chose. Through the interactive website (www.dhsenvironmentalforum.org), interested parties could watch presentations live and send questions to the presenters in real time. Also, all presentations were recorded and made available on the website. A bulletin board tool is also present for follow-up questions to be posted for presenters and participant discussion for the next six months. The innovative use of the Internet, virtual attendance by field personnel, and use of recycled materials in all of the Forum's resources made every aspect of the event environmentally friendly.

The Forum's two featured speakers were Mr. John Howard, the Federal Environmental Executive for the White House, and Rear Admiral Erroll Brown, Assistant Commandant for Systems, U.S. Coast Guard. The shared priority, discussed by both leaders, was focused on Environmental Management System (EMS) implementation and forming partnerships between agencies. Mr. Howard praised the USCG for its advancements in the area and cited the Coast Guard Yard in Baltimore, Maryland, as a sign of great success. He affirmed that EMSs are an ideal opportunity to address security issues as well as strategically address all the issues facing an organization. Identifying weak areas of hazardous waste management, security control points and establishing an emergency management plan are all ways to improve security in the context of EMS implementation. Mr. Howard also emphasized the intangible benefits of operating under an EMS. These include providing staff with an identity and purpose, having a

A Great Start to a New Tradition

by **Kathryn Lemanski**
Environmental Management Division (G-SEC-3)

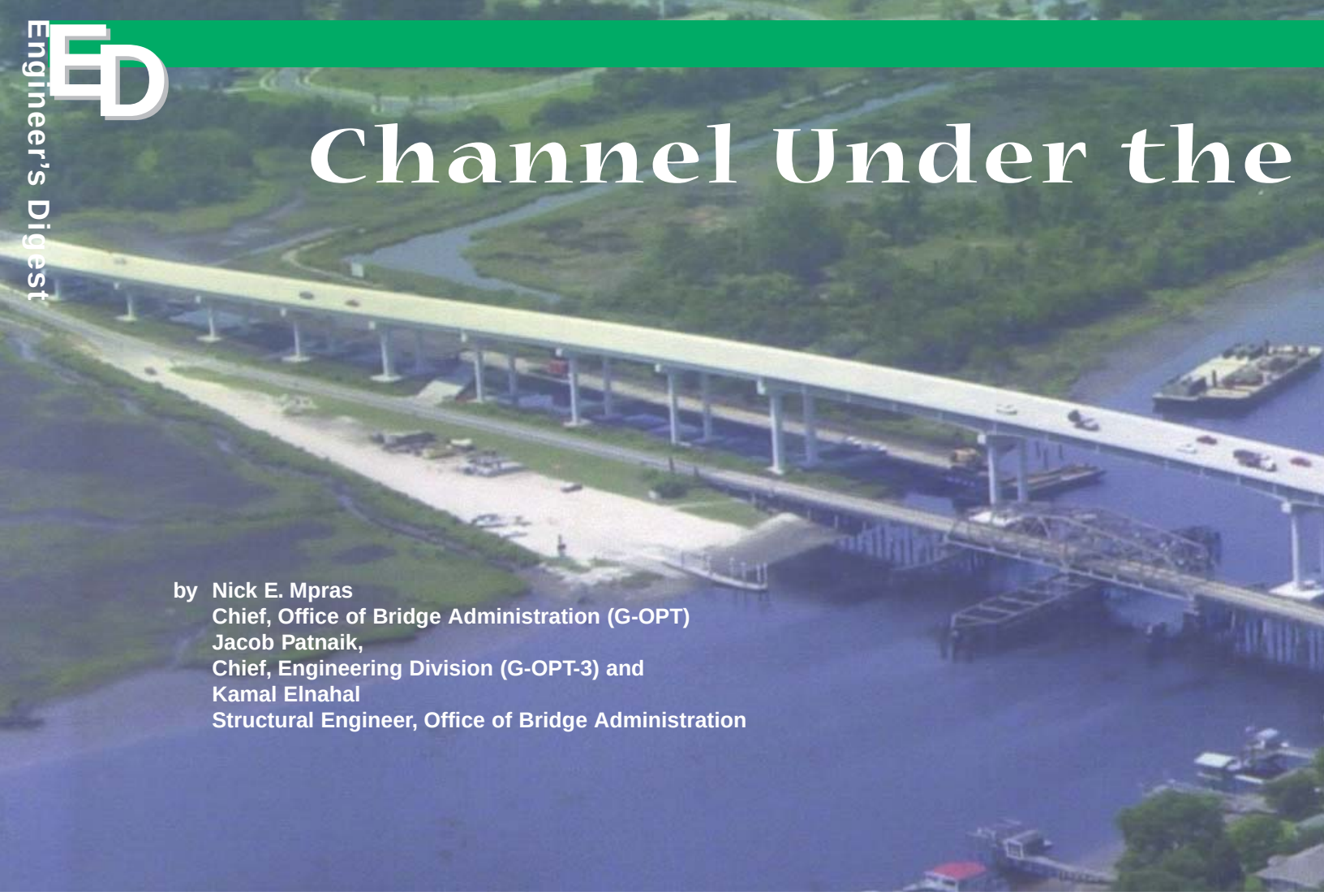
state-of-the-art mindset and being consistent with Secretary Ridge's management techniques. Admiral Brown stressed the importance of the Forum as an opportunity to develop important dynamic intra-agency relationships where parties are able to share lessons, advancements and form lasting partnerships. Admiral Brown's unwavering support for USCG environmental initiatives has energized the environmental management staff both at Headquarters and in the field.

All participants agreed that simple compliance with environmental laws and regulations is the bare minimum and not a satisfactory goal for the long-term. Environmental Management Systems are an important step towards the ultimate goal of sustainable stewardship. The end of the Forum marked the beginning of the journey to create an integrated environmental program within a new agency. While the challenge of merging 22 environmental programs into one is daunting, the annual gathering this Environmental Forum inaugurated will be the perfect vehicle for facilitating progress.

From the left: Edward Wandelt, Chief of Environmental Management Division (G-SEC-3), Rear Admiral Erroll Brown (G-S), and John Howard, Federal Environmental Executive for the White House engaging in discussion before presentations began on the second day.

Attendees at the two-day DHS Environmental Forum making use of the period in-between presentations to network with others.

Channel Under the



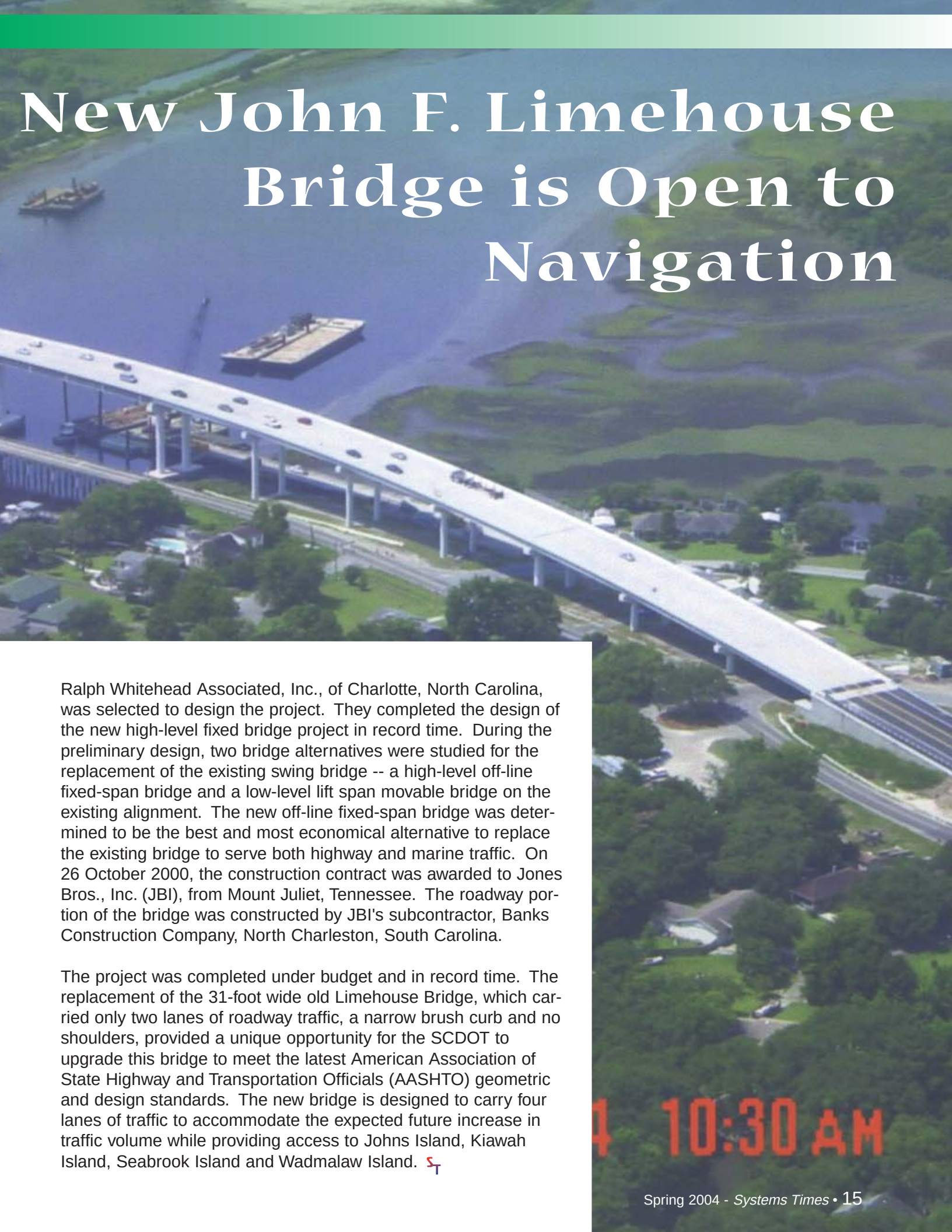
by Nick E. Mpras
Chief, Office of Bridge Administration (G-OPT)
Jacob Patnaik,
Chief, Engineering Division (G-OPT-3) and
Kamal Elnahal
Structural Engineer, Office of Bridge Administration

The old 1958 built swing span bridge, carrying traffic between the South Carolina mainland and Johns Island, only afforded a horizontal navigation clearance of 93 feet on each side of the center pivot pier and a vertical navigation clearance of 13 feet (above the high water level in the closed position). This swing span bridge is now gone, replaced with a new high-level fixed bridge which opened to roadway traffic in June 2003, and the channel swept clean. The new high-level bridge provides a minimum unobstructed horizontal navigation clearance of 215 feet, measured normal to the channel, and a minimum vertical clearance of 65 feet above mean high water, to meet the demands of present and future navigation needs.

Under a unique partnership agreement with the South Carolina Department of Transportation (SCDOT), the U.S. Coast Guard (USCG) provided a major share of the cost, $21 million of the $30 million total project cost. The total project consists of 6,653 feet of roadway; 16 concrete approach spans with a total length of 1,915 feet; and three continuous structural steel channel spans with a total length of 766 feet. This project was managed by the SCDOT and the USCG Bridge Administration Office in Washington, DC, in coordination with the USCG marine Safety Office located in Charleston, South Carolina.

The bridge project started when Congress first declared the John F. Limehouse Memorial Bridge to be an unreasonable obstruction to navigation under Section 42 of the Coast Guard Authorization Act of December 1991. Subsequently, on 5 August 1993, the Seventh Coast Guard District Commander conducted a public hearing for the purpose of gathering information relevant to the navigation clearances needed. Accordingly, on 26 May 1994, the Commandant of the Coast Guard issued a federal order to SCDOT to alter the Limehouse Bridge to meet the reasonable needs of navigation.

New John F. Limehouse Bridge is Open to Navigation

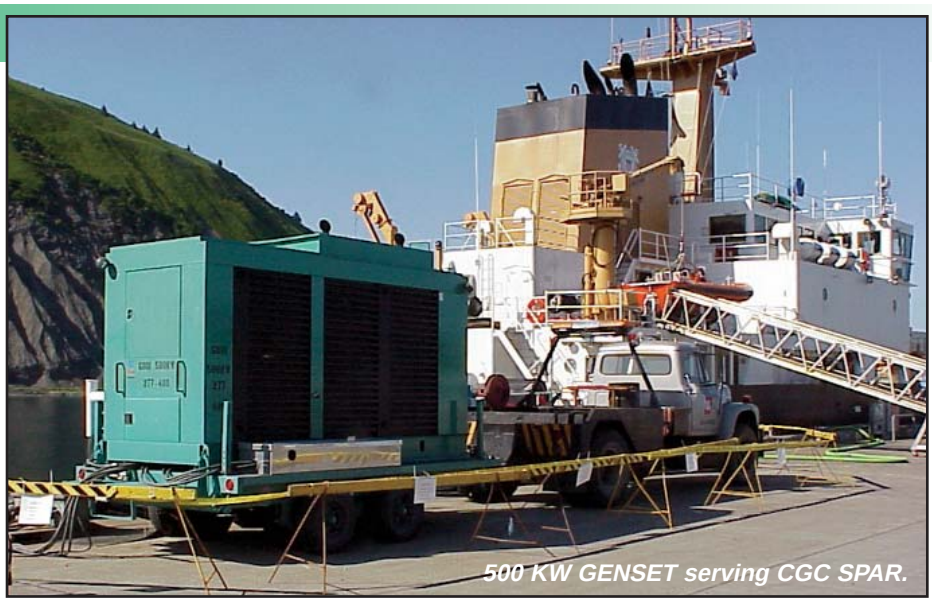


Ralph Whitehead Associated, Inc., of Charlotte, North Carolina, was selected to design the project. They completed the design of the new high-level fixed bridge project in record time. During the preliminary design, two bridge alternatives were studied for the replacement of the existing swing bridge -- a high-level off-line fixed-span bridge and a low-level lift span movable bridge on the existing alignment. The new off-line fixed-span bridge was determined to be the best and most economical alternative to replace the existing bridge to serve both highway and marine traffic. On 26 October 2000, the construction contract was awarded to Jones Bros., Inc. (JBI), from Mount Juliet, Tennessee. The roadway portion of the bridge was constructed by JBI's subcontractor, Banks Construction Company, North Charleston, South Carolina.

The project was completed under budget and in record time. The replacement of the 31-foot wide old Limehouse Bridge, which carried only two lanes of roadway traffic, a narrow brush curb and no shoulders, provided a unique opportunity for the SCDOT to upgrade this bridge to meet the latest American Association of State Highway and Transportation Officials (AASHTO) geometric and design standards. The new bridge is designed to carry four lanes of traffic to accommodate the expected future increase in traffic volume while providing access to Johns Island, Kiawah Island, Seabrook Island and Wadmalaw Island.

Enhanced Shoretie Services for the 21st Century

by Al Boudreau
Integrated Support Command Kodiak
Facilities Engineering Division



500 KW GENSET serving CGC SPAR.

The arrival of the new 225' Coastal Buoy Tender thrust Integrated Support Command Kodiak (ISCK) into 21st Century realities of electrical and electronic requirements for the Coast Guard vessel community. Existing power supplies could meet the basic ampere and voltage requirements, but could not meet the requirements for power quality. Over the last two years, ISCK and Facilities Design and Construction Center (FDCC) Pacific have joined forces to address these issues through a multi-step process of analysis and retrofits. The result of these efforts provided a quick interim fix using low cost portable transformers followed on by a permanent solution that upgraded the existing pier and shoreties. At this time, most of the work at ISCK has been completed and the groundwork has been laid to address further quality, grounding and compatibility issues as well. This article explains some of the issues and processes that were used to transform our existing conventional power supply to meet the technical power requirements of the "New" Coast Guard.

When the 225' Coast Guard Cutter (CGC) SPAR came to homeport in May 2001, the vessel was unable to stay connected to ISC Kodiak's existing electrical shoretie services because the ground detection system would not work. (The ground detection warning lights were on all the time.) The problem initially evolved around ISC Kodiak providing a typical grounded power supply to the ungrounded power requirement of the vessel. Further investigation revealed that SPAR was provided with a new electronic Ground Detection Monitor [GDM] system. This electronic GDM was much more sensitive then previous Ground Detection Light [GDL] systems provided on older class Coast Guard vessels. In addition to the new electronic GDM, the SPAR was outfitted with equipment that developed larger electrical loads when compared with other vessels of comparable size. The amount of shipboard equipment also increased dramatically as well as level of technology from what was previously provided. The combination of grounding issues, increased electrical loads and advanced technological equipment required a closer look at our shoreties and how we were going to provide power for the SPAR.

ISC Kodiak's shoreties were very similar to those found throughout the Coast Guard (CG). (The configuration had one grounded transformer feeding multiple 400 amp Shoretie services.) This configuration had been working for all the other CG cutters who used them previously … what could be wrong? What we found was not news to us, but confirmed issues that had surfaced 25 years ago. Providing grounded power to an ungrounded system may pose potential problems with personal safety, will accelerate vessel electrolysis via stray currents and can damage sensitive electronic equipment. Now we were forced to address the issues again and the SPAR needed an answer quickly.

It was determined that the existing 3-Phase/ 4-Wire WYE configured Utility Power Transformer would not be able to meet the needs of the SPAR. ISC Kodiak immediately provided the SPAR with required Shoretie service via a 500-KW portable Diesel/ Electric Generator Set [GENSET]. The GENSET's alternator had sufficient leads so that it could be configured in a 4-Wire WYE or 3-Wire DELTA configured output. The vessel's power requirements are similar to that of an industrial production plant in which the electrical configuration is a 3-Phase/ 3-Wire DELTA configured output. For that reason, we connected the GENSET in a similar configuration and immediately the grounding problem went away. (It should be noted that power supplies with 3-Wire DELTA configurations are normally best for ungrounded 3-Phase applications, while power supplies with 4-Wire WYE configurations are

normally best for grounded 3-Phase applications.)

Concurrent with our local efforts to provide power for the SPAR, this issue was being discussed by multiple engineering groups at various levels throughout the Coast Guard. In the weeks that followed, it became readily apparent that a permanent fix to the SPAR's power requirements would not happen quickly, and that the cost to operate and maintain a 500-KW Portable GENSET 24 hrs/7 days a week would get very expensive. Our first thought was to provide an ungrounded isolation transformer and locate it on the ship. However, it was decided within the CG's Vessel Engineering Community that if a transformer installation was to be done on one class of vessel, it would need to be a standard for all Coast Guard vessels. Given this requirement, it was deemed unfeasible due to space, weight and balance restrictions related to some vessels.

ISC and FDCC PAC then shifted to plan B and developed the concept for providing individual transformers for each pier shoretie connection. A transformer of appropriate size, voltage and configuration requirements was purchased from a General Services Administration (GSA) contract. ISC Kodiak then built what became known as our "Rube Goldberg" Portable Transformer Power Supply. This device consisted of the new transformer, an excess utility cart, spare portable GENSET cables and connectors.

As soon as we configured our transformer, we connected it to the SPAR, and immediately knew our "Rube Goldberg" worked! However, we also knew that this design would be hard pressed to last a harsh Alaskan winter, and definitely not until the permanent shoretie project was finished. Two marine grade transformers, new custom made trailers, and all the remaining parts and pieces to build "longer term" temporary power supplies were purchased. After many days of design refinement and countless hours of fabrication, we produced two self-contained portable transformers that could last indefinitely and were safe and reliable.

"Rube Goldberg" Portable DELTA/DELTA Transformer.

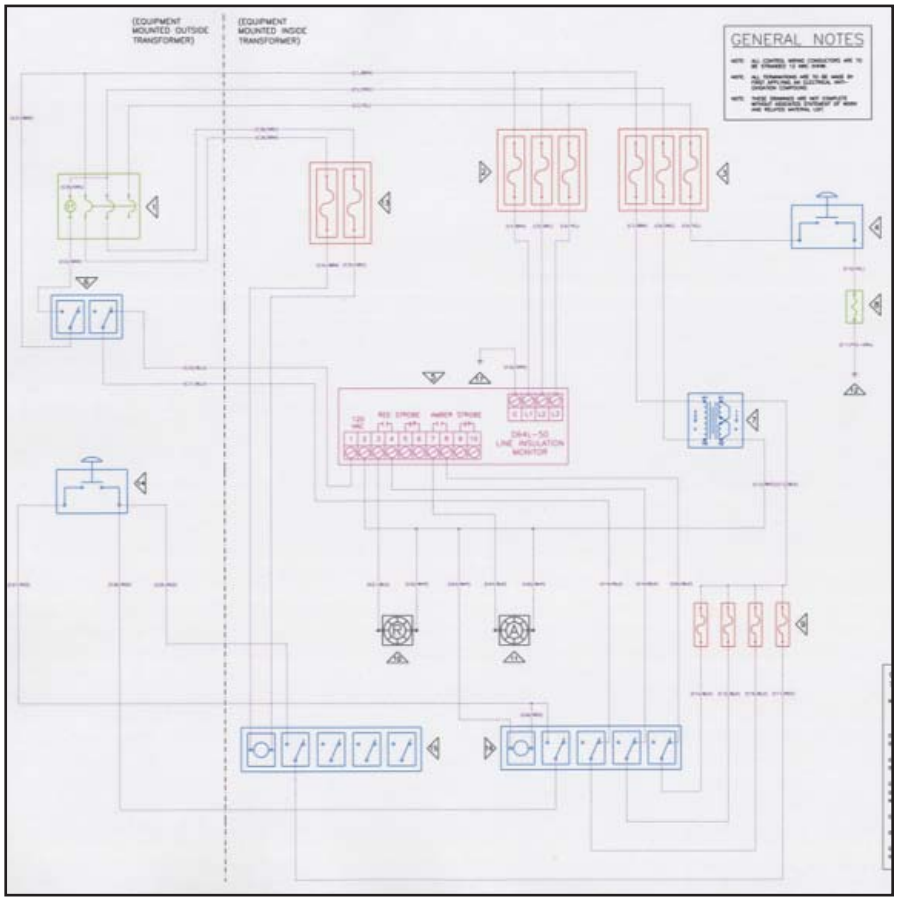
The new Stainless Steel Enclosed Transformer connected to the CGC SPAR.

The new Stainless Steel Enclosed Transformer being towed by truck.

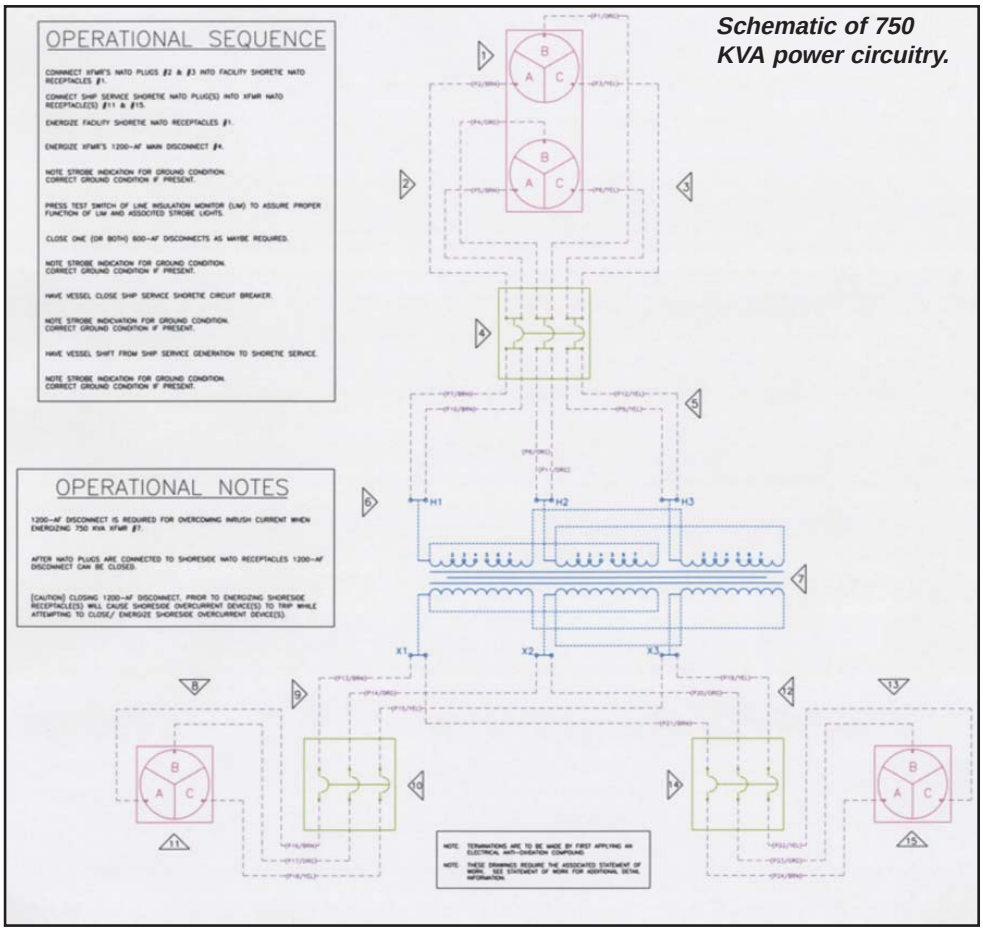
The approximate cost was $75K per unit. Upon completion, CG Headquarters approved this refined prototype and authorized the CG Yard to build additional units (a complete set of design drawings, material lists and fabrication instructions are available for 750 KVA and 400 KVA units upon request).

Subsequent to the SPAR's arrival, ISC Kodiak has been working with FDCC Pacific in developing improved permanent electrical shoretie services that deliver the quality of power needed for the new generation of Coast Guard cutters. The current phase of construction is complete and we took beneficial occupancy in the Summer of 2003. ISC Kodiak and FDCC Pacific have been utilizing the experience of power quality engineering firms such as Anteon Corporation for developing objective system test results. Additionally, future incorporation of Electromagnetic Transient Voltage Surge Suppressor [EMTVSS] units is being considered. Through the use of these EMTVSS devices, the plan is to reduce electronic system failures when these systems are in-line with large inductive, resistive and arcing equipment.

Much has been learned regarding what constitutes a quality electrical shoretie service at ISC Kodiak and more work is yet to be accomplished. With "Deepwater" program vessels being planned, gone are the days when providing a vessel with raw utility energy is considered acceptable. Changes in conventional wisdom may be applicable not only to shore side services, but also for on board vessel and other power quality applications as well; the final effects and outcome remains to be seen. With more information and analysis forth coming, ISC Kodiak looks forward to sharing additional Shoretie related information in future *System Times* editions.



Schematic of 400 KVA control circuitry.



Schematic of 750 KVA power circuitry.

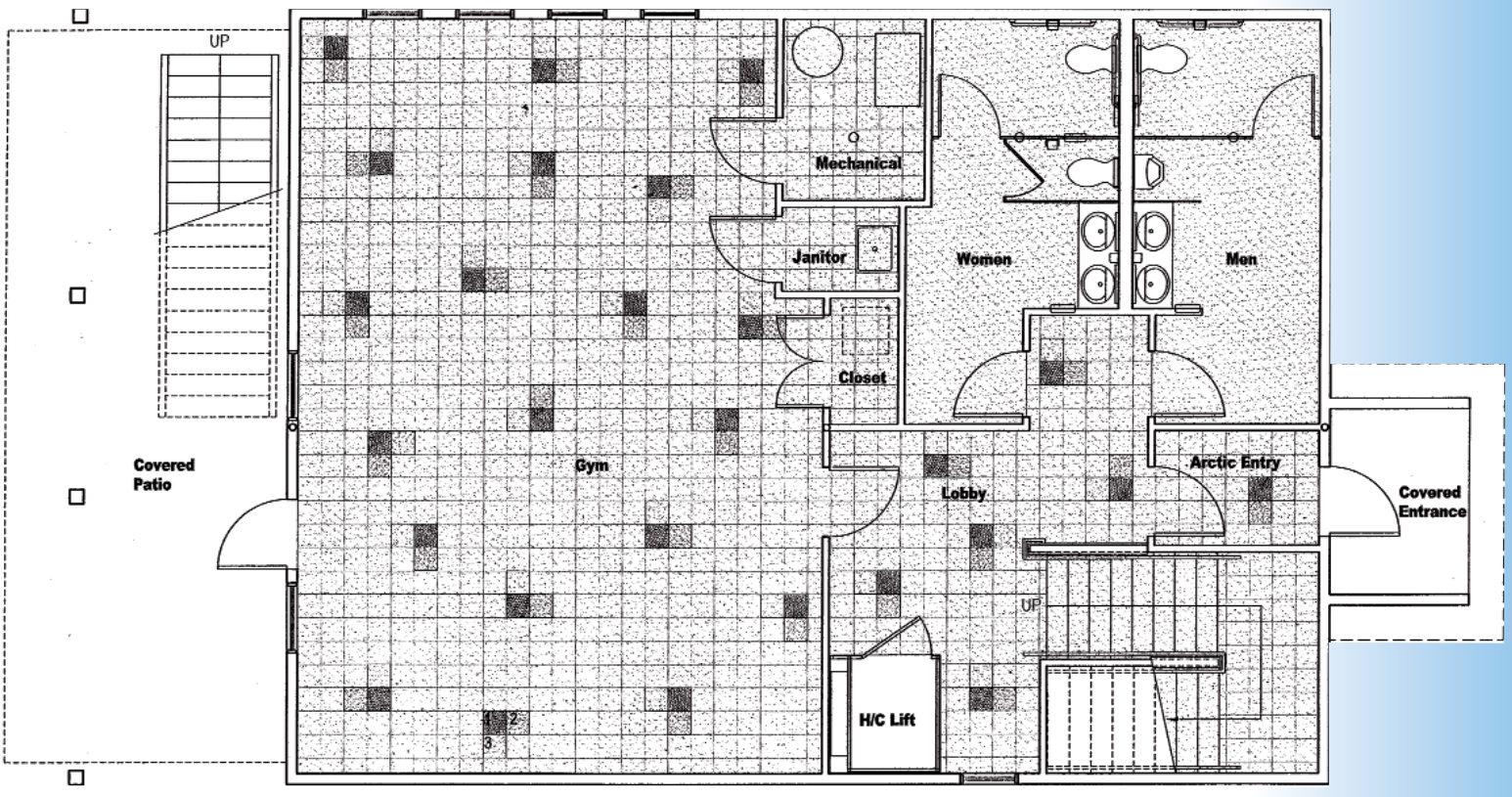
by CAPT Rick Beseler and
Mr. Mark McAll
Facilities Design and Construction Center Pacific

Coast Guard Foundation Sponsored MSO Valdez, Alaska, Community Center

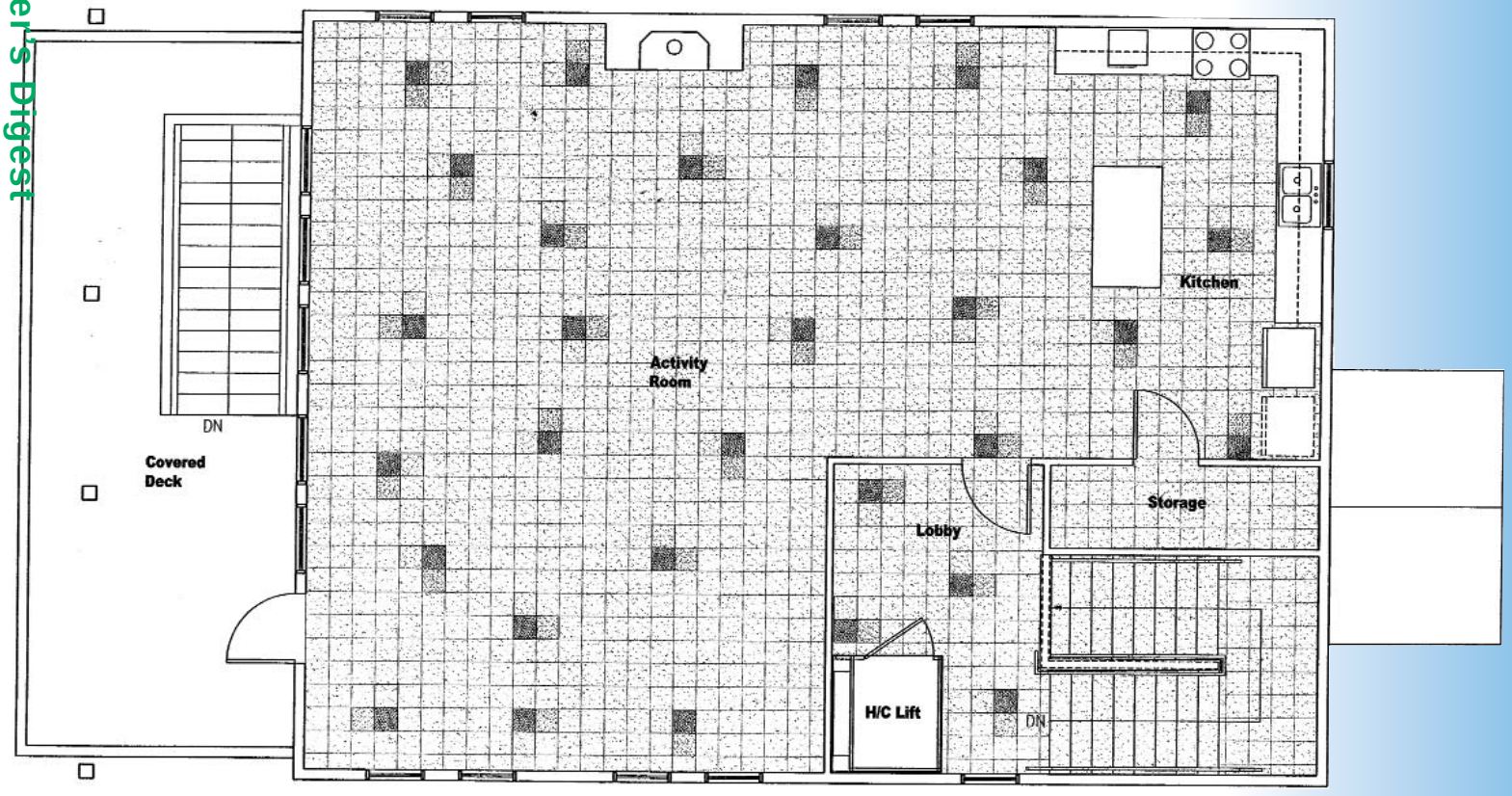
The community facility for the men and women living in the Coast Guard Housing Complex at Valdez, Alaska, consisted of a former temporary World War II (WWII) single story barracks building. This long narrow slab on grade structure with numerous internal columns and a very low ceiling height functioned poorly as a central gathering place and recreation facility for the families in the adjacent housing complex. Additionally, the structure and the associated infrastructure systems had deteriorated to the point they were beyond reasonable repair, despite numerous self-help maintenance and improvement projects completed by the residents through the years. Due to the lack of a safe and functional community facility in the housing area or one within the nearby surrounding community, the relatively remote location of this duty station with its adverse weather conditions and the low probability the of appropriated funding for a replacement facility made this an ideal candidate for a Coast Guard Foundation project.

A unique "win-win" partnership between the Marine Safety Office (MSO) Valdez, the Coast Guard Foundation, CCI INC., a native Alaskan owned construction contractor based in Anchorage, Alaska, and Maintenance and Logistics Command (MLC) Pacific was developed to construct a new community center. This partnership provided Coast Guard families in Valdez with a new functional two story, Americans with Disabilities Act (ADA) compliant, 3200 square-foot modern facility, incorporating an exercise area, open central meeting area, a small warming kitchen and a 390 square-foot elevated covered exterior deck.

In August 2001, CCI INC. was in the middle of a $5,000,000 Acquisition, Construction and Improvement (AC&I) shore funded construction contract with Facilities Design and Construction Center (FDCC) Pacific to renovate adjacent Coast Guard housing units and construct various site improvements, including detached garages. That federally funded project was scheduled for completion in November 2002. Considerable project savings could be real-



GROUND FLOOR



SECOND FLOOR

ized if construction of the Coast Guard Foundation's Community Center could be completed by CCI INC. since the company was already mobilized on-site. Moving quickly to take advantage of the situation Civil Engineering Unit (CEU) Juneau worked closely with MSO Valdez to develop the new Community Center's program requirements, conceptual floor plans, preliminary technical requirements and site layout in September of 2001. This information was transferred to FDCC Pacific, who than served as the Coast Guard Foundation's technical consultant and construction project manager for the remainder of the project.

The Coast Guard Foundation is a non-profit organization funded by private donations. Special real property arrangements were required to allow the Coast Guard Foundation, a private party, to temporarily occupy Federal land for construction of its facility and to protect the Federal Government from any liability associated with this privately funded construction effort.

A lease agreement generated by the Real Property Branch at MLC Pacific enabled the Foundation to utilize the site and protected the government's financial interests. It also required full compliance with local building codes and the Federal Americans with Disabilities Act. Title to any improvements remaining on the site after the lease was terminated would transfer to the Federal Government as the owner of the property.

FDCC Pacific utilized the American Institute of Architect's (AIA) model design-build construction contracts as a basis for preparing their contract. These model contracts were modified so that the technical requirements, prepared by CEU Juneau, were in the form of performance-based requirements and selected building components would be standardized to meet those utilized in the adjacent housing facilities under construction. The commercial design-build contract was signed between the Coast Guard

Foundation and CCI INC. on 28 January 2002, with an absolute project budget of $500,000. Two very short months later the construction contractor started work on-site with final approved project design documents in hand.

Coast Guard personnel from MSO Valdez coordinated the construction contractor's daily activities with the surrounding family housing residents and provided daily inspection reviews of the on-site construction work. Periodic technical and contract management support was provided to MSO Valdez personnel by FDCC Pacific's project manager for the adjacent AC&I shore funded housing project. Selected contract submittals and contractor partial payment requests were reviewed by FD&CC Pacific personnel in Seattle, Washington, with approval recommendation then provided to the Coast Guard Foundation.

The Commandant, Admiral Thomas H. Collins, dedicated the new facility in honor of Admiral John B. Hayes, former Commandant of the Coast Guard, in a ceremony on 4 October 2002.

The entire project was completed in 12 short months from inception to dedication, and within the strict $500,000 budget set by the Coast Guard Foundation. The old WWII era community center building will de demolished by CEU Juneau under the Coast Guard's Shore Facility Capital Asset Management (SFCAM) program's effort to eliminate costly non-functional older facilities.

The Foundation can be proud of the positive impact this new facility has had on Coast Guard families in Valdez. Having a meeting place available has significantly improved morale and promoted a sense of community in this remote duty station in the 49th State.

Put me in Coach, I don't smoke...

by James Yacobi
Chief, Office of Systems Planning

On every sports team there is a starting team and there are substitutes. On many teams there are players who have only one job to do and that is done only in special situations. By the same token, there are often utility players who can do just about anything reasonably well in almost any situation but aren't quite good enough to be a "starter." We are understandably proud of the BM3 and FN/MK3 because they are as good a player (and starter) as you will find on any team.

There is some divide between the starters who are quite good (play their particular roles well) and the other members of the team who more simply have a role to play and look forward to having the chance to "show their stuff." While everyone is on the same team, all are not typically equal … at least not until one of the starters is hurt or misses the team bus or whatever. Then everyone looks to "the bench" to fill the gap and make the team whole once again. History is replete with examples where the "second string" saves the day by coming in off the bench and turning in a stellar performance. No team can play well or win without a solid second string, including some role players. Everyone is there to add value … even the little guy, with glasses, on the end of the bench.

Team Coast Guard is not unlike the team described above. We honor and respect our starters (with good reason) for their ability and for their contributions. We have folks who are starters (the BM3 and his pal the FN/MK3) and we also have folks on the bench who play roles or fill in whenever and wherever needed.

We have high expectations of our starters and our second string alike. What we don't see fully yet (from the team analogy) is that Team CG has more than just a first and second string. We have active (officer and enlisted), reserve (officer and enlisted), auxiliary (officer and enlisted), civilian (GS and WG), retirees (officer, enlisted and civilian), family members and contractors … yes, contractors. While we may not all have a letter jacket, we are all on the same team.

All of the players are part of the team -- our team. If we are going to win -- or even "play well" we must have a viable team from top to bottom. That team must have people who were cognitively selected to fill a role-whether starter or substitute. We must trust that the owner, general manager and coach (whoever they are in the analogy) will select the right players, in the right mix, to allow us to put the best team on the field in any given situation.

Just what does this mean to the average member of Team CG? Well, it sure looks like the "game" is changing. Rules changes, adding new teams to the league, other teams are getting more competitive, etc. For Team CG, we face entry into a new culture in the Department of Homeland Security (DHS). We face an economic and political landscape that is demanding smaller, cheaper, better government. We are adding ample amounts of technology -- unprecedented access to and visibility of information. We are merging countless functions across government in the name of savings. We are at the same time delineating (the domestic aspects of) national security as the critical part that it is in our national defense program. Just like the Dodge ad says on TV, the rules are changing.

So, logically, should our preparation for the season and the (back to our sports and team analogy) games. In changing our approach, we must, among other things, re-evaluate our team -- starters and bench. While no one would want a team full of just Michael Jordans, neither would you chose to have all starters and no bench/role players. The bottom line is our current workforce mix is going to change and we need to understand and manage that change.

We must understand and embrace the value of the different role players who comprise our team. Further, we must appreciate that we will be doing business differently than we have traditionally done it. The role of and need for each player is evolving. If the operators are the offense and the supporters are the defense, you might stretch the analogy such that our defensive strategy is likely to be changing first and most. That said, Deepwater and Competitive Sourcing will change the nature of the game. Those changes will no doubt change our player mix. We are on the verge of doing business very differently. Those differences will impact not only how we play the game but the kind of players we need.

Competitive Sourcing (a.k.a., A-76) has been around for decades, but has not always been on the forefront of the various administrations' agenda. The current Administration has made Competitive Sourcing a prominent part of the President's management agenda. Our challenge is that we now have got to figure out where to play him and when. We also don't want to have to "hide him" but should figure out where he can be most successful. It is, after all, why they call it a team sport.

Want more information on this subject ... go to the third, and final, related article found on page 47.

When is a Home Not a House?....

When It's a Representational Facility!

by CDR Chuck Simerick
Office of Civil Engineering
edited by D. Camilla Perry
Office of Civil Engineering

By now many have heard of the term "Representational Facility," but what is it and how does it relate to Flag Quarters? To give you some background, the Flag Quarters Quality Action Team was chartered in August of 2001 to examine the administration of Flag Quarters and recommend improvements to customer service and capital asset management. The goal was to identify policy and or regulatory barriers to improve quarters management, and to identify new resource requirements or changes to existing resource application. The key guiding principal was that Flag Officers have a significant rep-

resentational mission -- flag quarters provide the capability and infrastructure to accomplish that mission. The results of the Quality Action Team (QAT) were published in a QAT Decision Memo dated 19 December 2001. Contrary to popular belief, the first recommendation was not to just change the name from Flag Quarters to Representational Facilities, but more importantly, to designate specific flag positions as Special Command Positions. Previously, this designation was only for the Commandant, Vice Commandant, Atlantic and Pacific Area Commanders and the Superintendent of the Academy. As of 5 June 2001, the Chief of Staff, Atlantic and Pacific Maintenance and Logistics Command (MLC) Commanders and all District Commanders were included by special designation by the Secretary of Transportation. The designation allows for more flexible use of appropriated funds and a greater fund allowance. To this end, a separate Representational Facilities maintenance account was established for each MLC to fund the daily operations of the facilities in their Area of Responsibility (AOR), and any minor repair work as required. Initial Operating Expense (OE) budgets were based on an average yearly figure of $25K per facility. Consistent with the Special Command designation, the title was formally changed from "Flag Quarters" to "Representational Facility." This change recognizes that these "homes" are Coast Guard facilities where flag officers represent the Coast Guard. In line with this policy change, the program management was transferred from Housing (G-WPM-4) to the Office of Civil Engineering (G-SEC). All Representational Facility program guidance and policy is generated from G-SEC and the current program manager is Ms. Camilla Perry, (202) 267-18567.

Although the Coast Guard policy established in COMDTINST M11103.1B, *Maintaining and Supporting Representational Facilities* is clear, there is still confusion as to whether these structures should be treated as quarters or a facility. This of course is due to the unique dichotomy in which tenants are residing at a recognized facility. The reality is that these facilities are treated as both at different times for different reasons. There are spaces within the facility such as the entrance foyer, dining room, living room(s), stairways, powder rooms, kitchens, patios and hallways connecting these areas, which are utilized for public access during certain entertainment functions and are designated as Official Entertainment Areas. It is these areas that define the structure as a Representational Facility and allow us to use depot level funding to support repair and maintenance type projects. However, there are also areas like family bedrooms, bathrooms and other unique spaces that are considered the personal space of the resident, and are what make the facility a "home" for them. To this end, even though these structures are now considered facilities, and housing regulations and policy no longer apply, it was important to still maintain several of the housing guidelines. The "Resident's Guide" and enclosures (1) and (5) of COMDTINST M11103.1B, *Maintaining and Supporting Representational Facilities* provide specific instruction and guidance to the residents to assist them while living in these unique "home" facilities. The "Resident's Guide" is a unique document designed not to resemble any other Coast Guard publication, but rather is tailored after a typical hotel guide. The guides were developed to provide useful local information about the surrounding community, procedures for repairs, a Master Plan of planned projects, facility layout and description, and Coast Guard instructions, including the new COMDTINST M11103.1B, *Maintaining and Supporting Representational Facilities*. The guides, which are unique to the specific facility they service, were first introduced at the May 2002 Flag Conference. They were unanimously accepted and have generated much praise from several Flag Officers.

TRANSITIONAL ISSUES

Although MLCs have the option to place management of Representational Facilities under the Integrated Support Commands (ISCs), Housing or Facilities Engineering department, many have chosen to keep them under the Housing department. Despite this fact, Representational Facilities are no longer supported by the Housing Program and no longer receive funding from that program. As a result, field units are wrestling with the new maintenance guidelines, and keeping within the initial $25K AFC30 spend cap established by COMDTINST M11103.1B. This limit may need to be adjusted as more of the hidden maintenance expenses are realized. Until funding levels are increased, the MLCs must determine what spend plan will best suit the needs of the Representational Facilities in their AOR based on historic expenditures and adjust their budget models accordingly.

One issue causing a great deal of angst is the need to outfit these facilities with authorized furnishings. Until recently, there were no specific guidelines concerning the types or quantities of furnishings that would be authorized for the support of the representational function of the facility. Now, furnishing lists have been established and units responsible for maintaining the facilities are challenged to fund these items. The issue of whether to fund this endeavor at the Headquarters' level is still pending a decision from the Commandant (G-C). For now, units will have to fund the furnishing outfitting with local AFC30 funds.

Although program policy was created in 2002, an update is currently being developed to address all the issues related to the management of Representational Facilities. Procedures for submitting increased funding request documents and other documents related to policy change have been developed, and will be distributed with the updated version of the COMDTINST. Eventually, the majority of discrepancies will be corrected, but for now, specific questions and/or concerns should be forwarded to the Program Manager, Ms. Perry at dperry@comdt.uscg.mil.

PROGRAM HIGHLIGHTS

Resident's Guide - G-SEC developed a Resident's Guide for Representational Facilities based on a hotel guide format. The prototype was then distributed to servicing Civil Engineering Units (CEU) as a template for assembling facility specific guides at the local level. These drafts were then presented at the May 2002 Flag Conference. Now that the format has been approved, servicing ISCs are responsible for maintaining and updating the guides. The guides are specially formatted and assembled to be unique and unlike any other Coast Guard document. This uniqueness enhances the guide's value to the occupants and it is very important that the ISCs maintain the document's integrity.

Master Plan - The Coast Guard uses a Master Plan to document and monitor all planned work and expenditures for Representational Facilities. The Master Plan, which is included in the Resident's Guide, has to be approved by the Vice Commandant. The Master Plan should include a timeline to keep the facility in peak operating condition, and scheduled maintenance and repair costs are budgeted annually and documented in an Spend Plan. Although the Spend Plan must be updated 30 August annually, the Master Plan need only be updated every five (5) years.

Furnishing Outfitting - Representational Facilities need furnishings to enhance the occupant's ability to perform official entertainment functions. The Coast Guard provides most of the furnishings for the public entertainment areas including couches, china cabinets, dining room tables, tableware -- including table linen, china, glassware, silverware, serving utensils -- and a variety of appliances and maintenance tools/equipment. Examples of government provided furnishings and expected life expectancies are listed in Chapters 2 and 3 of the

new COMDTINST M11103.1B, *Maintaining and Supporting Representational Facilities*. A Blanket Purchase Agreement (BPA) has been established with Marvin J. Perry & Associates as a purchasing mechanism to procure the furnishings for the entertainment areas of a Representational Facility. The purpose of the BPA is to eliminate contracting and open market costs such as: the search for sources, the development of technical documents, solicitations, and the evaluation of bids and offers. The BPA will further decrease costs, reduce paperwork and save time by eliminating the need for repetitive, individual purchases from the schedule contract.

Program Website - The Representational Facility Program website is among the list of available tools. It was first presented on 16 October 2002, and continues to be updated with the latest information. The Special Command Aides will eventually use the site to order replacement furnishings, obtain contact information, and view the latest policy and guidance. Pictures of the 19 Representational Facilities, links to Residence Guides, along with approved Master Plans, will be populated and viewed at (http://cgweb.comdt.uscg.mil/g-sec/RFI/Home.htm).

LOOKING AHEAD

The program is up and running and we are making progress towards improving customer service every day. One recent development is the creation of a new planning document, the Decision Memo for Representational Facilities. This document can be used in lieu of a Problem Statement and Planning Proposal when recommended by COMDT (G-SEC). More detailed information about this document and its use will be included in the update to the governing instruction.

The 17th District is breaking new ground with the divestiture of its existing Representational Facility, and the development of a long-term solution for a new facility. Currently, 16 of the Coast Guard's 19 Representational Facilities are owned, but District 7, JIATFS and District 5 facilities set new standards as private lease agreements, and Interagency Service Support Agreements have been negotiated to accommodate their newly appointed Commanders.

Lastly, look for an update to COMDTINST M11103.1B, *Maintaining and Supporting Representational Facilities*, by late August. The update will include more detailed guidelines on spending authorizations, leasing guidelines along with planning factors, and procedures for submitting funding requests and other documentation.

Representational Facilities are expected to highlight the Coast Guard in their capacity of hosting functions of political, diplomatic and national importance. Simultaneously, they must provide comfortable, appropriate and adequate housing for flag level officers assigned to Special Command Positions and their families. Although a Representational Facility is not considered a house, occupants are afforded reasonable flexibility for personalizing these facilities, consistent with stewardship of the "public trust." If there is ever an instance when a home is not a house, it's now and it's called a REPRESENTATIONAL FACILITY!

DMSMS

Diminishing Manufacturing Sources Management System

"More than just locating parts"

by **Richard Davis**
Buoy Tender Replacement Project (G-AWL)

During the production phase of the 225' Buoy Tenders (WLB), the shipbuilding contractor started experiencing parts sourcing problems with equipment vendors. Some manufacturers didn't have sufficient quantities to support vessel construction and their other customers while another experienced a warehouse fire that destroyed needed parts.

A few relatively minor Local Area Network (LAN) CASREPS (Casualty Report) on the WLBs became a major concern when the Item Manager learned the primary manufacturer had ceased production of the needed circuit cards. Initially these circuit cards were available within a few days from the manufacturer, so Coast Guard (CG) inventory was kept low but corporate plans now required production to be transferred to another facility that needed six months to ramp-up their production line.

These are only two examples of what's called "Diminishing Resources" in the commercial marketplace that are experienced by many acquisition projects relying on COTS (Commercial off-the-Shelf) solutions to reduce the acquisition time and cost. Even though the 225' WLBs are designed and produced by Marinette Marine Corp, most of the 216 operational systems on board, are of the COTS variety (in contrast to being "Developmental," where the Government owns the design and the data rights). In addition to the sourcing problems above, other vendors were moving or changing production facilities, going out of business, changing designs and applying product improvements which all negatively impacted on the production and supportability of the WLBs. *Contrary to popular belief, a warranty from the prime contractor is useless in situations where the parts are not available.*

What to do?? What to do??

Most of these problems can be overcome through the use of a program used extensively in the Department of Defense (DoD) called "Diminishing Manufacturing Sources Management Systems" (DMSMS). This process proactively monitors the commercial market place through routine contact with vendors, to stay abreast of upcoming changes that could affect availability of parts or support. When changes are identified, database queries are conducted to assess the possible impact. If a customers system may be impacted, DMSMS starts their work. The DMSMS team will come to the rescue and develop a plan to eliminate or reduce the impact to the operational fleet. The key to success is to have the DMSMS program implemented before problems occur (before the empty shelves are discovered). The DMSMS process will proactively monitor all of your vendors, and their vendors, and their vendors, to keep an eye on all of the issues that can impede production or support of your system. Some DoD programs have experienced a 15 to 1 return on investment using DMSMS.

Here's how the process works: DMSMS is composed of a four-phased process: Identification, Solution, Validation and Implementation of the solution. When these four processes are working properly, they provide positive results for three critical management issues -- reducing obsolescence, improving configuration management and mitigation of operational safety, suitability and effectiveness.

First step: Identification Process - Before an obsolescence problem can be solved, it must be identified. This should occur before the item is needed in the fleet, or long supply delays will be the result. Ideally, managers will have accurate records reflecting the correct "as is" configuration of their assigned systems. The DMSMS process tracks all of the designated configuration items and validates actual (on the shelf) availability of parts to support the item. DMSMS also works closely with vendors to maintain visibility of their business changes that may affect the parts availability. If a company has planned to move the production of a circuit card to another branch of their corporation, DMSMS would know about it early enough to investigate the supply line impact of such a move. DMSMS would then consider alternatives and prepare a recommendation to their customers to preclude any supply shortfalls.

Second step: Solution Process - Once obsolescence problems have been identified, the DMSMS team launches an aggressive resolution effort to locate and recommend possible solutions. This solution could be a recommendation for, "a life of type buy," additional sources to procure from, redesign or engineering changes. Research and cost to benefit analysis of the alternatives usually points to the best resolution.

Third step: Validation Process - The DMSMS Team members will analyze the recommend solution and either accept or reject it. If accepted, the solution is validated by testing, small scale implementation or detailed engineering analysis. This could entail establishing a contract for reverse engineering or to procure a small number of items for testing. Once the validation has been successfully completed, full-scale implementation may be initiated.

Forth step: Implementation Phase - Here, the validated solution is fully implemented. The implementation process may include any number of considerations such as: funding, availability schedules, operational impact, engineering changes or personnel.

After witnessing long periods of WLB unscheduled downtime due to parts not being available, the project office (G-AWL) has implemented a DMSMS program with the U.S. Navy, Crane Indiana. Long-term supportability of the new WLB class of Buoy Tenders, with all of their COTS systems, depends heavily on the long term availability of commercial sources of parts, engineering support and technical assistance. The pro-active management process of DMSMS helps prevent long term CASREPs for parts, by being aware of changing support postures before the parts are needed.

The Office of Logistics Policy (G-SLP) has recognized the value of DMSMS and is assisting with the development of a pilot test DMSMS program on the WLB-B Buoy Tender project.

Contact Mr. Richard Davis, G-AWL, (202) 267-2233 or Mr. Fred Haub, G-SLP, (202) 267-1448 for more information on the DMSMS program.

Air Station Miami, 10 Years of Improvement

by LCDR Bruce Herring
CGAS Miami Facilities Engineer

Holding the title of "The Busiest Air Sea Rescue Unit in the World" requires a significant investment in aircraft, people to maintain them and facilities to make it all come together. Air Station (AIRSTA) Miami has all of the above and has held that title for many years. More recently it has been the beneficiary of a significant Acquisition, Construction and Improvement (AC&I) investment in its facilities. The state of the art fueling facility, completed in 1995, was Phase I. This $6M project providing four ramp fueling stations to allow aircraft to fuel and go any hour of the day or night. The project did have some construction issues, and as a result, required significant Civil Engineering Unit (CEU) Miami's effort, as well as the Air Station fuel farm personnel, to bring the fuel farm up to 100% operation.

Phase II of this facility improvement focus included the Fiscal Year 1998 (FY98) construction completion of the $10M 84,250 square-foot Rotary Wing and Operations Hanger. This impressive operations and aircraft maintenance facility is the central point of operations for the AIRSTA; with the ground floor housing rotary wing engineering maintenance functions and the other two floors providing room for the operational aspects of the AIRSTA.

Last but not least, the May 2002 completion of the $7M Phase III renovation of the 66,000 SF Fixed Wing Hanger provided a turnkey area for maintenance of Falcon jets. The new space includes an engine shop with overhead lift capacity, berthing rooms for duty personnel, Ground Crew shop and G-1 shop.

These AC&I investments, as well as a steady stream of AFC-43 projects, executed by CEU Miami have seen the continued improvement of AIRSTA Miami facilities. Air Station Miami's Facilities Engineering staff work hard at maintaining these new facilities for the long haul. This investment in facilities was further recognized by the Aviation community with the transfer of an aviation billet for a Facility Engineer billet. It was recognized that the facilities were just too much for a collateral duty position, so the investment was made to have the Civil Engineering community take over the job.

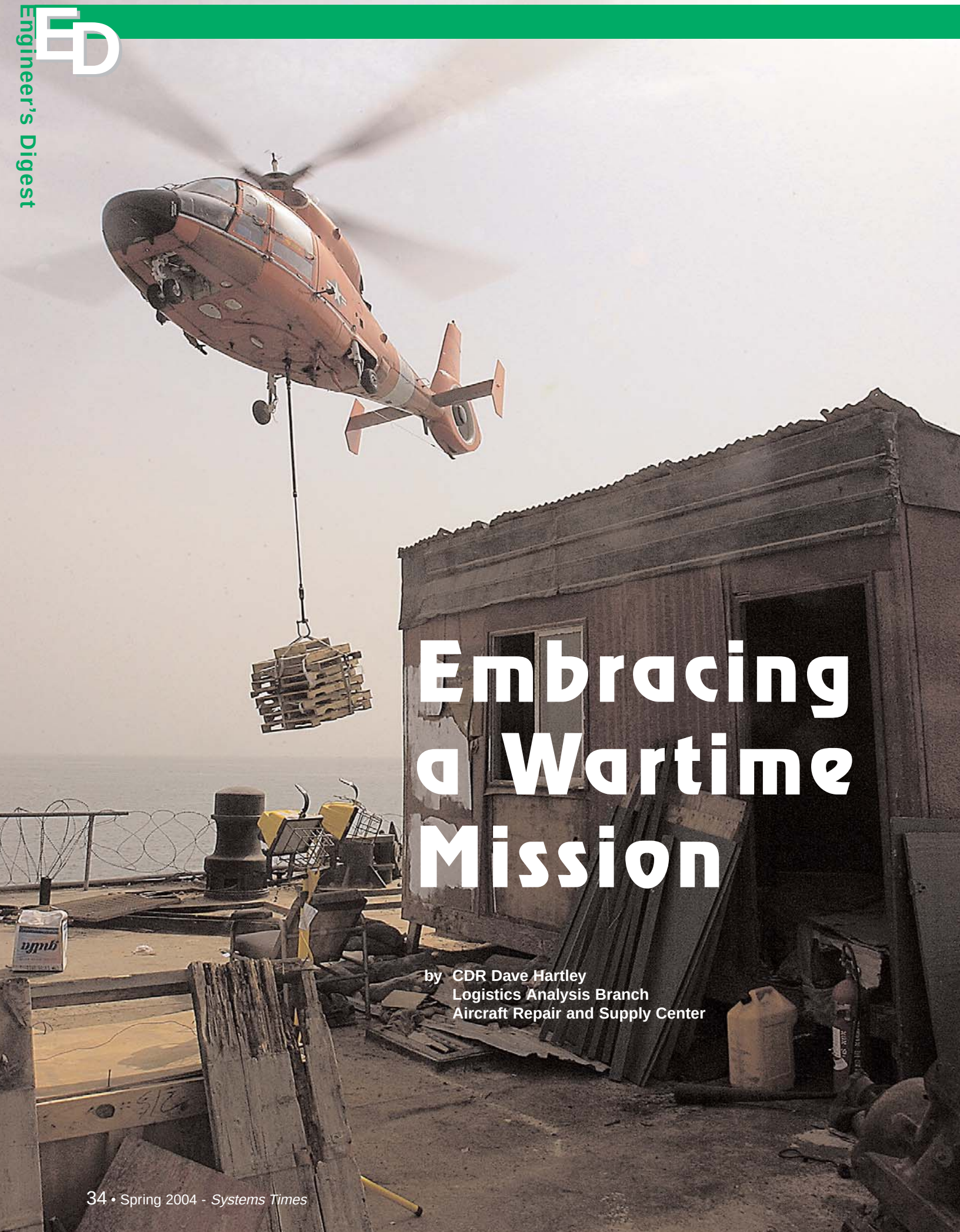
The resulting can-do facilities testify to the Coast Guard's investment in the Busiest Air Sea Rescue Unit in the World.

Maintenance Operations in the Rotary Wing Hangar.

Maintenance Operations in the Fixed Wing Hangar.

Fuel Farm Facility.

Rotary Wing hanger (left) and Fixed Wing hanger (right). Fueling station is in the foreground.



Embracing a Wartime Mission

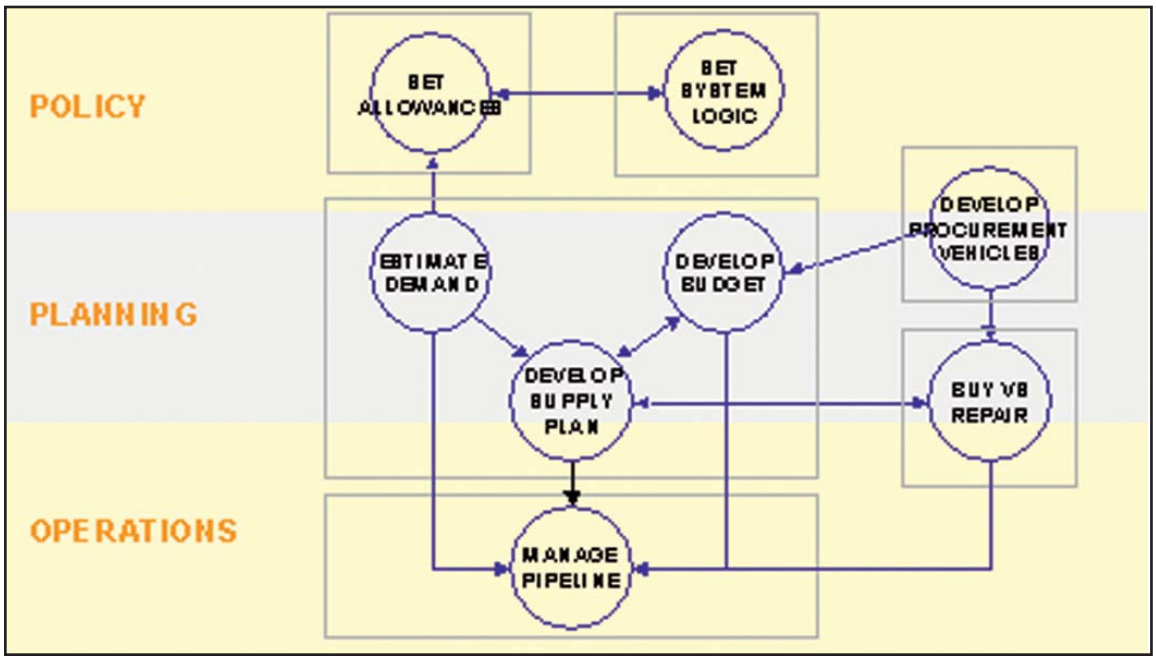
by CDR Dave Hartley
Logistics Analysis Branch
Aircraft Repair and Supply Center

The Aircraft Repair and Supply Center's (ARSC) value in supporting Coast Guard aviation missions is more critical than ever as the organization emerges as the lead logistics support activity within the Department of Homeland Security (DHS). The strategic shift also brings the real potential for sustained increases in OPTEMPO as we muster the nation's resources in the War against Terrorism. As leadership charts the organization's course, determining new ways of becoming the "vendor of choice" are a natural outcome as Coast Guard (CG) Aeronautical Engineering better positions itself for leading rather than following the ensuing wave of change.

ARSC continues to redefine ways to be more responsive to the evolution of aviation missions and opportunities as DHS and Deepwater Acquisition priorities conflict with business as usual. On both fronts, ARSC is an emerging leader, as it hones its core strengths in:

- ✔ Procurement
- ✔ Reliability Engineering
- ✔ Overhaul & Repair
- ✔ Inventory Control

These competencies are translated to an interactive system view across three tiers: 1) Policy, 2) Planning and 3) Operations. These decision-based activities cross the divisional boundaries and continue to be the center of business issues as we strive to meet our shifting mission requirements.



In its new role as Deepwater "vendor of choice," ARSC is in a unique position to export its successful Aviation Logistics Management Information System (ALMIS) as the Coast Guard's gold standard in configuration management and logistics support activities. This opportunity is not merely a technology breakthrough; rather, a reflection of our robust fundamentals. Strengthening our supply chain is consistent with our ability to lead -- our ability to leapfrog comes from having a solid basis from which to jump.

Assessing Emerging Roles and Goals

Exacting the most from ARSC's base to meet newfound responsibilities is vital not just to Aeronautical Engineering, but also to the security of our nation. To achieve this, we view ARSC through a post 9-11 lens, and ask, "What is required to meet the emerging demands?" The essence of the mission requires dexterity, balanced between capability and budget. The answer can be found in building a capability consistent with responsibly and responsively delivering value across critical decision paths; e.g., make, buy or repair -- when, how much and where. When framed within a mission/business context, necessary business decisions are flushed out; i.e., should warehouse space be displaced by repair capability; should certain vendors own more or less of the supply chain to enhance mission support; at what cost, at what expected outcome?

A recent investigation of these issues reaffirmed the incredible value the organization brings to the table. This study, "Spares Optimization Business Analysis," completed June 2002, boiled down ARSC's value in terms of how effectively the organization delivered reliable products. The organization is most successful where crisp hand-offs within the supply chain occur. Smooth hand-offs are aligned with visible, well-defined processes; however, less visible hand-offs are sometimes fumbled at considerable cost. This is expected, as priorities are constrained by human capital, budget and time. The unwieldy accumulation of fumbles across the chain can be thought of as a system reaching or exceeding its control limits. This is often seen as chasing requirements rather than staging them. The benefits in strengthening the chain are highlighted:

Benefit	Current Situation	Outcome of Benefit	Performance Metric
Right-sizing inventory levels	Some inventory levels are largely based on initial provisioning and are likely too high.	Reclaiming of storage space Reduction of related -- indirect -- inventory management costs. Reclaiming of scrap value.	Inventory turnover
Right-sizing allowance levels	Allowance levels are inconsistent and are not backed by empirical evidence; less than 1/30 are established by an analytical method.	As safety stocks and cycle stocks begin to reflect true variability in demand and lead-time, the focus will shift to variability reduction.	Demand and lead time variability
Reduction of backorders	ARSC has not yet achieved total pipeline visibility and cannot balance actual and anticipated demand rates with stock positions in the pipeline.	Reduction of AOG and NMC. Improved aircraft availability.	Order fulfillment ratio
Reduction of order fulfillment costs	Orders often have to be expedited to compensate for the lack of total pipeline visibility. This raises the fulfillment and repair costs.	Improved ability to meet budgetary goals.	Fulfillment costs vs. cost of issues

Benefit	Current Situation	Outcome of Benefit	Performance Metric
Reduction in administrative and repair lead times	ARSC does not manage the supply pipeline against operational goals; rather by the average of the past two years usage.	By managing to a supply plan, items managers will initiate efforts to reduce lead times in order to streamline the pipeline.	Administrative and repair lead times
Streamlined supply pipeline	The spares supply chain lacks agility because of the aging fleet and the obsolescence of many components.	Proactive stance in engaging in collaborative relationships for parts pooling, and in establishing strategic vendor relationships.	Cost of assets owned

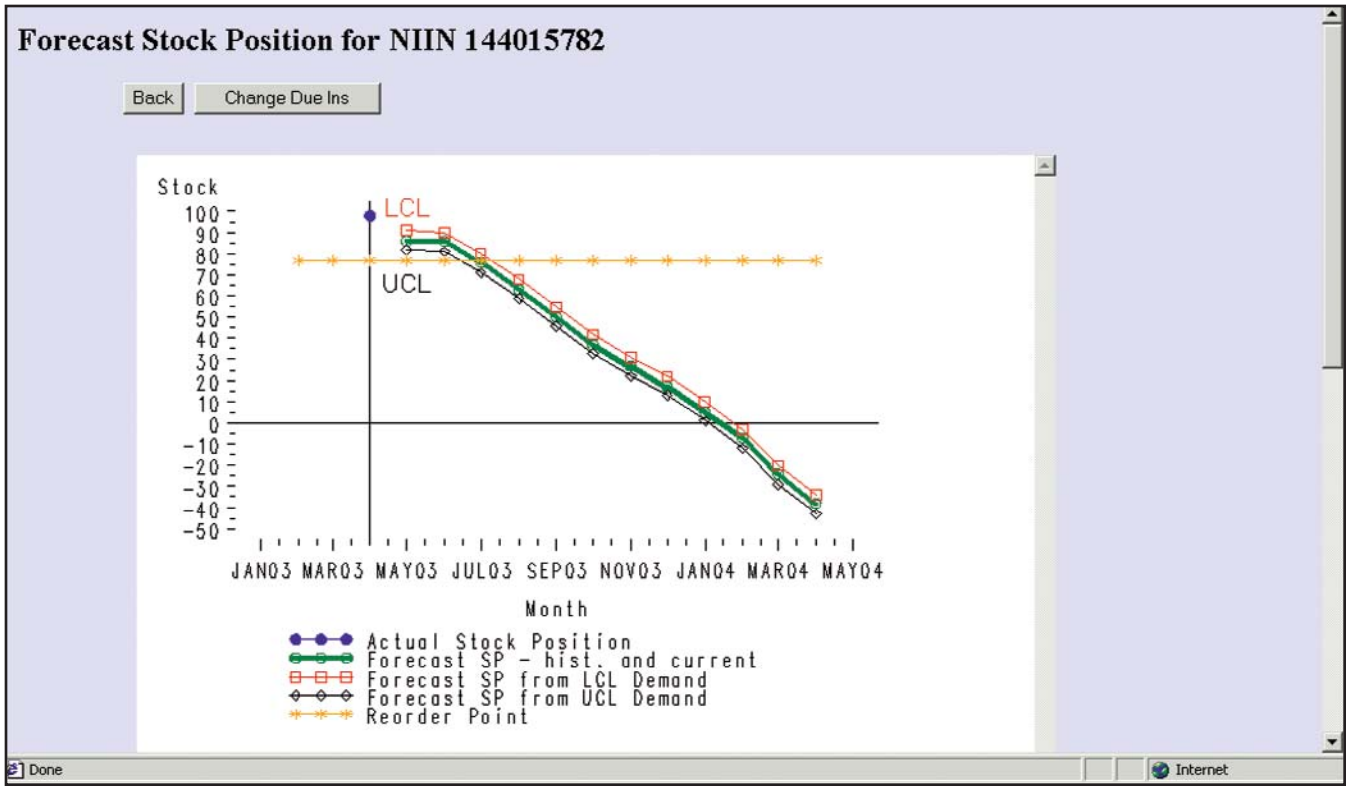
Build Capability

Becoming more capable in supply chain hand-offs, requires focused investments. In Fiscal Year 2003 (FY03), Aviation Logistics Division sponsored a series of pilot projects to exploit the most critical gaps in the chain. The idea is to build analytical infrastructure as ALMIS Enhancements, with pilots spawning viable tools within the ALMIS Analytics tool suite. Three pilots were launched in FY03: 1) Demand Forecasting, 2) Strategic Performance Management and 3) Procurement Management. Demand Forecasting, which reported out April 2003, has already validated the viability of the pilot approach.

Pilot 1 - Demand Forecasting

The first pilot, Demand Forecasting, seized available technology to solve the questions, "how much" and "how often." To support this concept, the organization created a brain trust that became a clearing-house for requirements, market research and decision tool rapid prototyping. As plank owners, the first Ops Research shop hastened the creation of viable product by forming a partnership, first with Decision Analysis Partners of Vienna, Virginia, then with SAS Institute of Cary, North Carolina. The forecasting pilot gave rise to the first ever logistics data warehouse, where demand and procurement data are: 1) staged and infused with intelligence; and 2) bridged to several tools in the *ALMIS Analytics Tool-Kit*. This pilot was launched via a web-based connection to Inventory Managers where a work queue is prioritized, what-if's are gamed and forecasts are launched with a click.

Items are graphically depicted with past and future Stock Positions. The prototype began with 15



items, and expanded to hundreds as the pilot moved into production in May of 2003.

Pilot 2 - Strategic Performance Management

The second pilot, Strategic Performance Management weaves together a common view of the organization, linking strategic goals with organizational trends and metrics in a balanced scorecard. Leveraging implementations by the Federal Aviation Administration (FAA) Technical Center and the U.S. Marine Corps, ARSC leads the Coast Guard in illuminating clearly defined process trends. This web-based solution focuses on issues on the leading rather than the trailing edge of trends. The tool becomes the thread that connects the organization's far ranging objectives into a pre-packaged criterion such as the Baldridge Award.

Additionally, the scorecard brings the organization's strategic plan into a cohesive view:

Scorecards | Tables | Views | Diagrams | Graphs | Globals | Time Periods | Back | Forward

Southern Region: Category View, Score: 95.88 (SCMSPM.May2003)

Category, Measures (94.00)	Status fθ	Actual	Target	Trend
Inventory Policy Scoring (Mean)	101.05			
Fill Rate	98.95%	94%	95%	
Backorder Ratio	125.00%	4%	5%	
Frequency of Replenishment	105.26%	3.8	4	
Inventory Turns	75.00%	4.5	6	
Inventory Metrics (Mean)	94.54			
Days of Supply	90.00%	18	20	
Inventory Value	99.08%	$1,779,506.22	$1,796,000.00	
Forecasting (Mean)	87.780			
Demand Variance	80.000%	0.125%	0.10%	
Forecast Accuracy	95.56%	86%	90%	

Maximize Readiness Through Systems Performance - completing aircraft on-time, zero repair discrepancies, optimizing aviation inventory, improving capital facilities and producing reliable/maintainable aircraft.

Optimizing Human Resources - developing human capital, enhancing employee well-being, satisfaction and safety, promoting environmental stewardship and community citizenship, and developing senior level continuity for business and human resource management.

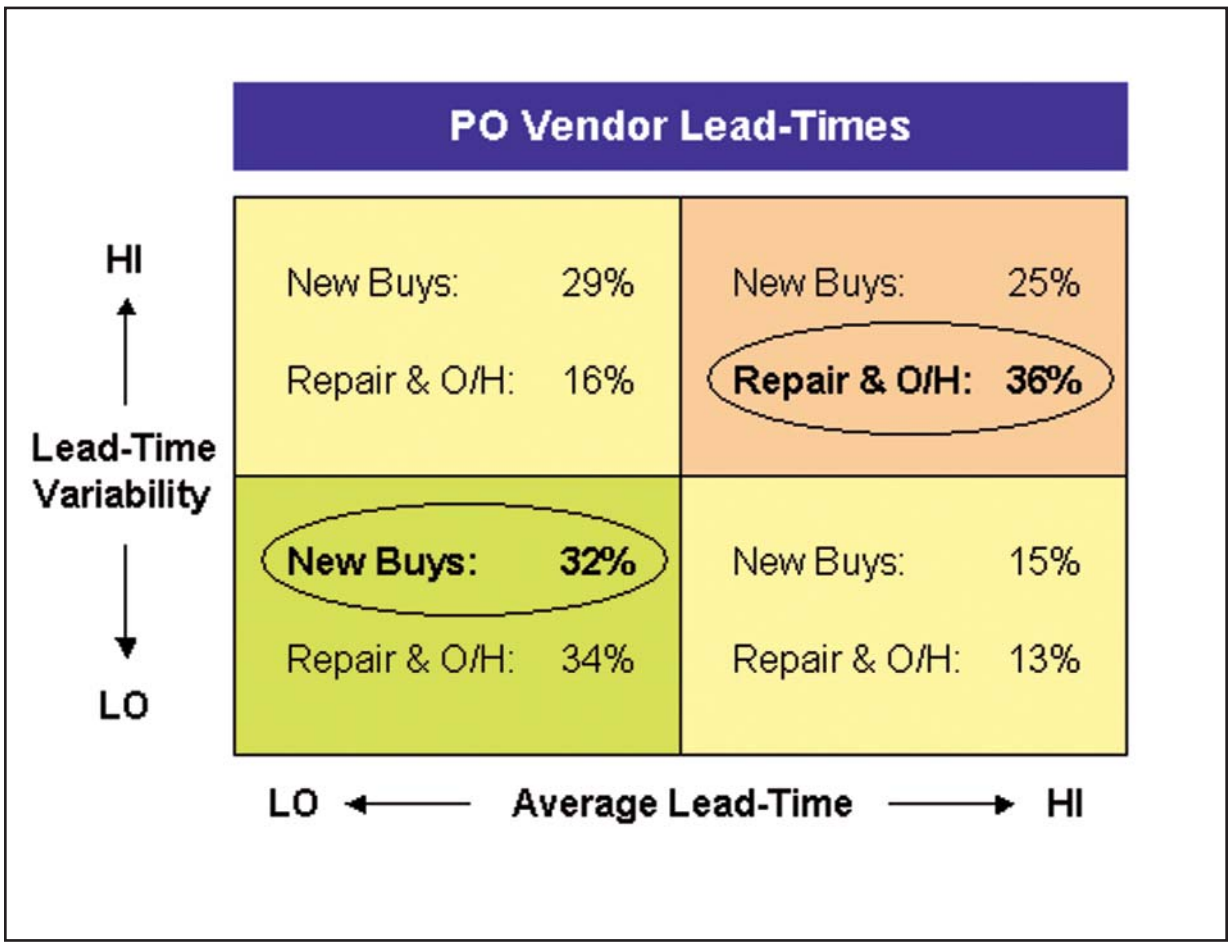
Leverage Best Business Practices to Support Core Competencies - exercise good financial stewardship, becoming the maintenance center of excellence for the Department of Homeland Security, achieving ISO certification, aligning with e-Gov agenda, developing standardized enterprise balanced scorecard, expanding vendor partnerships and increasing customer satisfaction.

Pilot 3 - Procurement Management

This pilot addresses the need to minimize Admin and Procurement Lead Time delays within the supply chain. Because shorter delays translate into less inventory burden, this area holds much potential. The pilot emphasizes rigor in identifying items for specific contract action. The key objectives answer the following issues:

- Should an item be on contract; if so, what type?
- What criteria should be used to make the contract choice?
- Are vendors meeting required repair turn around targets?
- Which items managed by ARSC would be better managed by external vendor and visa versa?

A first cut on the procurement area was completed April 2003 using SAS Analytical Software, where a significant slice of Purchase Orders were identified as potential candidates for requirements contracts.



Demand forecasting and Procurement Management initiatives support vendor collaboration. By providing demand profiles to vendors, we manage expectations, reduce risk and leverage predictability.

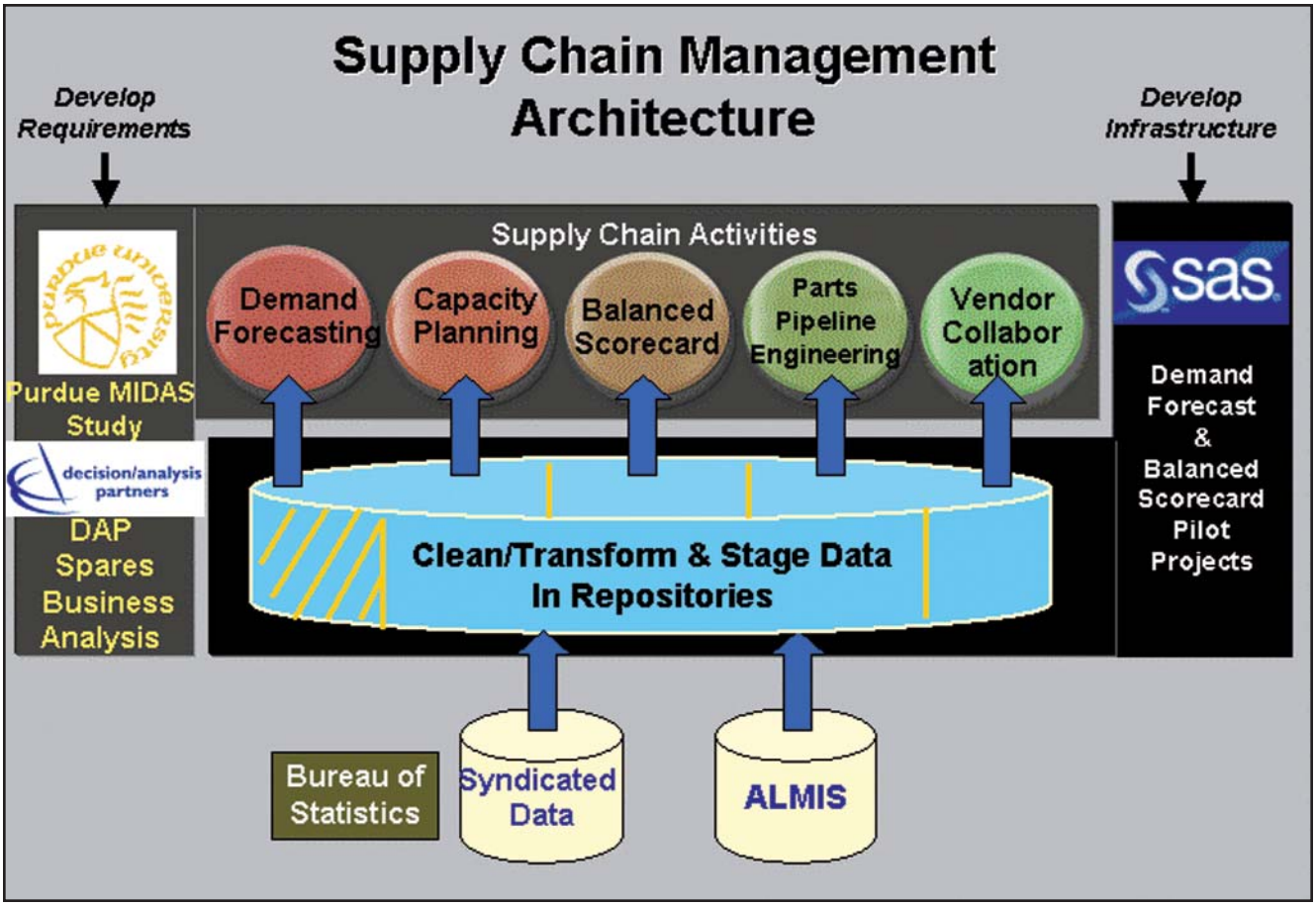
Moving Toward the Future Today

By working these pilots, we are addressing the organization's strategic supply chain objectives.

Building infrastructure that increases the viability and connectedness of the links within the supply chain translates to more capability within the same capital outlay. The Aviation Logistics Analysis Office is actively building relationships with SAS Institute's Supply Chain Intelligence group and Purdue University. Moving toward developmental partnerships brings new capability through evaluating and refining emerging tools of the trade. Relationships with SAS and Purdue further strengthen our ability to better integrate the links within our supply chain.

Linking and enhancing the right processes through straightforward industry decision tools are essential in ensuring we have the right stuff in the right amount in the right place. Increasing Ops Research capabilities evolves the organization's ALMIS Analytics Tool-Kit more quickly. The first ARSC statistician is now in place with a data warehouse programmer shortly behind. These organizational shifts will provide logistics managers the right information paired with the right decision-making tools to improve the quality and responsiveness of our supply chain.

Coast Guard Aviation is rising to the challenge to meet mission needs within the newly formed Department of Homeland Security. Our emerging role as aviation logistics leader provides opportunity to flex our core competencies in new and creative ways. The constant in this sea of change is the organization's fundamentals; solidifying them provides the potential to extend our influence. As we continue to improve our supply chain, we strive to reach a balance between cost and capabilities. As we move into this new era, we will meet or exceed our requirements through continued investment in our supply chain: sound forecasting, spares planning and budgeting, and obsolescence management.



Meter and Gauge Calibrations Plus!

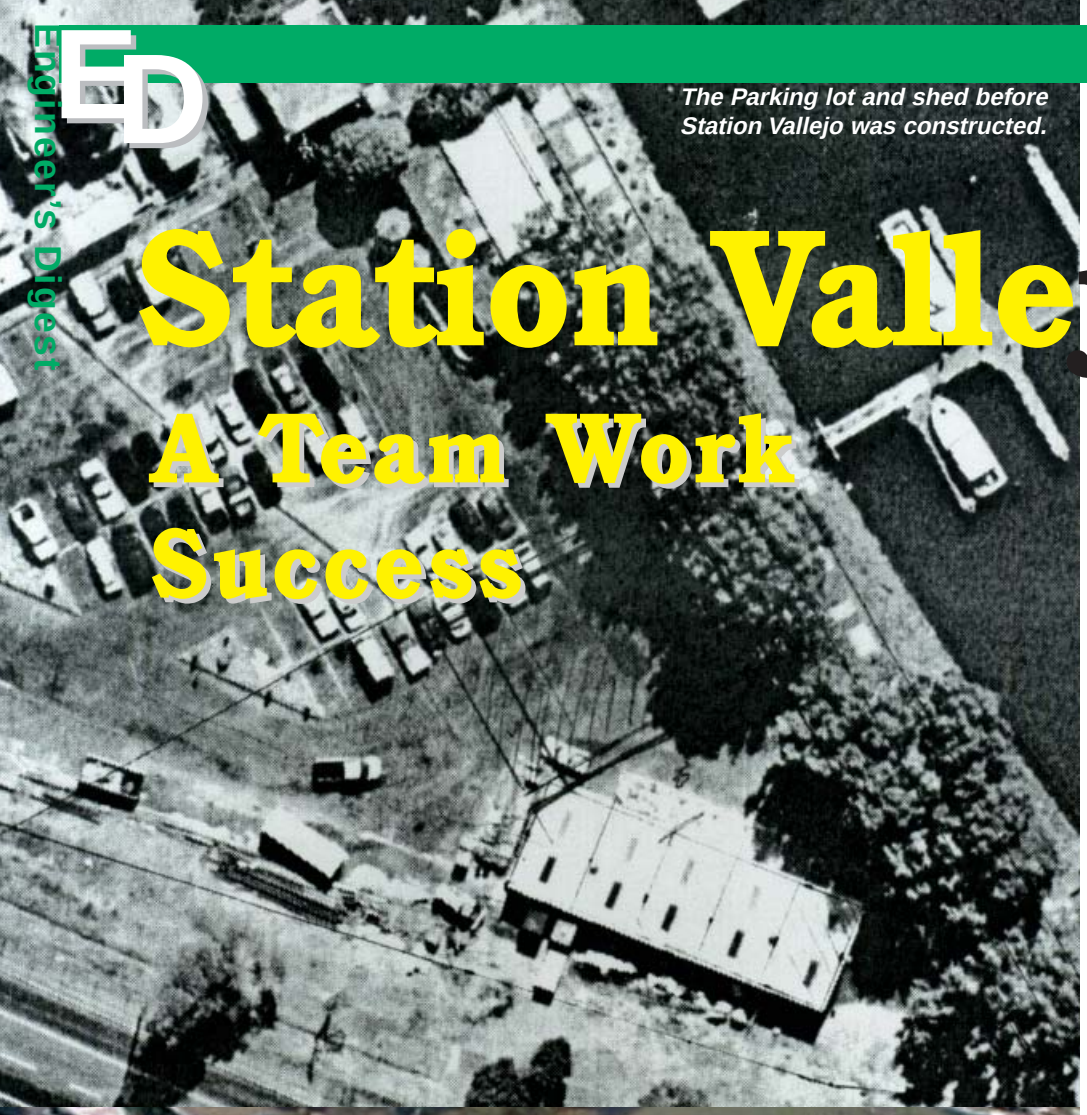
by CWO Dan Meyers
Naval Engineering Support Unit Portsmouth

The Field Calibration Activity (FCA) located at the Naval Engineering Support Unit Maintenance Augmentation Team (NESU MAT) Portsmouth provides instrument calibration of critical gauges and meters for Coast Guard Fifth District cutters. A Calibration Team made up of four technicians travel throughout District 5 providing this service to more than 30 cutters, including medium endurance cutters, buoy tenders, patrol boats, construction tenders, tugs and the occasional visiting cutters from other Coast Guard Districts.

The FCA meets a rigorous biannual certification requirement in order to satisfy Coast Guard calibration procedures and policies. Certification is conducted at the FCA site by Maintenance and Logistics Command Atlantic Naval Engineering Division (MLCLANT(v)) staff. Proficiency evaluations of our calibration technicians are conducted in addition to a review of training records, inspection of calibration equipment, and verification of procedures and record keeping.

Meter and gauge calibrations are not the only services provided by NESU's "Cal Team." They also perform annual video inspections of the cutter's ventilation systems, fan motor vibration analysis, and airborne ultrasonic testing for air and vacuum system leaks. Fan motor vibration analysis is a trend analysis tool used to monitor fan motor bearing conditions. Annual video inspections of ventilation systems and fan motor vibe analysis enable cutters to avoid catastrophic failures and lengthy down time of their ventilation systems. The airborne ultrasonic testing for air and vacuum systems leaks extend the life of air compressors and vacuum pumps and motors by reducing run intervals or eliminating short cycling caused by leaks. The video inspections of ships' ventilation systems are VHS recordable inspections used to determine the internal conditions of ductwork and aid in the decision process for cleaning intervals or determining the scope of repairs for a ship's ventilation system. These bore scope inspections have been very useful for avoiding unnecessary "open and inspect" work in cutter availability work packages.

Each District 5 cutter's calibration schedule is maintained at NESU Portsmouth. Cutters are notified 30 to 60 days in advance to schedule an FCA Cal Team visit. The average visit takes from two to four days, depending on the cutter's size and the number of systems due for calibration. At the completion of each visit, the Cal Team leader briefs the cutter on their findings and leaves them a written copy of the results. Once the team returns to NESU, they generate a CD of the results of the visit and forward it to the cutter.



The Parking lot and shed before Station Vallejo was constructed.

Station Vallejo
A Team Work Success

by **Mark McAll and Rowland Smith**
FDCC Pacific

Station Vallejo, formerly called Station Carquinez, is located near the South Easterly tip of the Mare Island Bridge, in Vallejo, California. This article reviews the recently completed project to relocate the Station and all of its operations from the California Maritime Academy (CMA) campus to its new location. Unique to this project were the real property, funding and time challenges faced, and how they were successfully overcome.

Aerial view of the New Station Vallejo.

The 25-person small boat Station Carquinez consisted of a station building; a shop building; a 100' X 13' X 6' deep post-tensioned concrete float; one 41ft patrol boat; and two trailer mounted response boats. The facility was temporarily located on leased space at the CMA campus at Vallejo, California. The Station was originally located at Navy Station (NAVSTA) Mare Island and was moved, along with the post-tensioned float, to the CMA premises when the NAVSTA was closed. The CMA lease was to expire on 30 September 2001; due to difficulties finding a suitable site, CMA extended the lease for one more year with the understanding that the Coast Guard Station would be relocated on or before 30 September 2002. The Station was on track for relocation to a mooring site in the City of Martinez, California, when real property negotiations, apparently in an advanced stage of negotiations, completely broke down

and were terminated in August of 2001. At this stage, design documentation had been completed for a 26-person station, which consisted of a 4500 square-foot (sf) modular station building, an engineering shop building and relocation of the post-tensioned float. We now had a "Station" with no place to go; and a 30 September 2002 deadline to move off the CMA campus.

Maintenance and Logistics Command Pacific's Civil Engineering Division (MLCPAC(s)) and Facilities Design and Construction Center Pacific (FDCCPAC) went into scramble mode. MLCPAC(s) located and entered into a lease with the City of Vallejo for a portion of an existing marina parking lot with an existing 3000 sf metal shed in bad need of repair. To "mildly" complicate matters, an adjacent restaurant was using this lot for its overflow parking, the restaurant owner had since become extremely attached to this convenience.

FDCCPAC now had to expedite the tasks of modifying and site adapting the plans and specifications for the new 26-person Station to the new site and then award the construction contract. Under the circumstances, the decision was made to enter into a negotiated contract with an 8(A) contractor. The project budget, which was already close to minor Acquisition, Construction and Improvement (AC&I) limits, could not handle this additional strain; cost proposals came in above the statutory funding limits!! It was now late January 2002, and the deadline to move the Station out of CMA was still 30 September 2002.

After analyzing the contractor's proposal, the project's Contracting Officer, Construction Manager and Engineer-in-Charge concluded that to bring the project within budget limits, the project scope needed to be broken into two acquisitions; the 8(A) contract to do the site improvements, float relocation and installation, and metal shed rehabilitation; and, a separate acquisition of the modular building via a General Services Administration (GSA) contract. Based on their recommendation, the 8(A) contractor was asked to look for cost savings and to provide their best and final offer for the reduced project scope; concurrently proposals were solicited from modular manufacturers listed under the GSA schedule. This was a critical decision; the aggregate of the revised project costs were negotiated to $920,000 -- $80,000 below the $1M statutory limit. A positive "unintended consequence" … the new Station Vallejo site was more sheltered than either the original Mare Island mooring or the CMA mooring. Due to a strong working relationship between the 8(A) contractor and a local manufacturer of segmented concrete floats, the contractor was able to offer a new, suitably sized concrete float with appropriate piling, at no change in pricing, in lieu of moving the heavier post-tensioned float, and making the required structural modifications -- clearly a win-win situation! "Alameda, we now had a project!!" Construction funds were authorized and contracts were awarded. It was now late March 2002, and the Station was still looking at moving out of CMA by 30 September 2002.

The project execution was definitely going to be a "Team Effort." MLCPAC(s) was responsible for the lease with the City, along with resolving related developments; MLCPAC(t) [Electronic Systems Division] was responsible for the telecommunications feeds and Communication Center needs; the Station and Group San Francisco were responsible for scheduling and managing the equipment and material moves.

With all agreements and contracts in place, on-site work started in mid-April 2002. Having separate contractors, for the modular Station Building and for the balance of the work, put FDCCPAC in the role of General Contractor; the decision was made to have a single person be both the Project Manager (PM) and Contracting Officer's field representative (COR). Additionally, the Station had to remain operational through out the transition. Given the "new-normal" operational demands of the Coast Guard, during project construction, the Station grew from a 26-person Unit to a 42-person Unit. These growth requirements were incorporated into the station as it was constructed. The new Station was occupied and fully operational by the last week of September 2002 -- station personnel accomplished their move in less than four days with no disruption to mission demands. The new Station Vallejo went from a bare parking lot to an operational station in barely five-and-a-half months!!

The exceptional efforts of FDCCPAC's Design, Contracting, and Construction Management; MLCPAC(t) and (s) staffs; the City of Vallejo; Group San Francisco; the two construction contractors; and especially Station Vallejo personnel all made this project a success. This is an outstanding example of what the Coast Guard can do when all the different Coast Guard commands work as a Team. ST

Design and Construction of a New 10-Ton Marine Chiller System

by ISC New Orleans HVAC Shop for CGC WYACONDA

by **Tom Pigg**
USCG ISC New Orleans
Mechanical Branch Supervisor

Top: old compressor, bottom: new compressor.

In the fall of 2002, CWO Mel Edward and CWO Joseph Aragon from St. Louis visited ISC (Integrated Support Command) New Orleans. During their visit they toured the Heating, Ventilation and Air Conditioning (HVAC) Shop and met with Tom Pigg and MK1 Mike Smith to inspect the 7.5 Ton Marine Chiller Units the shop builds for the WLIC (Inland Construction Tender) Tenders. After seeing the unit, they asked if it would be possible for the shop to design and build a 10 ton unit for the WYACONDA stationed in Dubuque, Iowa. After describing what type system was presently installed, we decided that a similar system would best suit the needs of the boat. The new system would require a two stage split system, utilizing two compressors which could be switched making either compressor the lead unit. Each stage would be a separate 5-ton system that could operate independently of the other. The new system would also be made using an HFC refrigerant that would be more environmentally friendly than the old R-12 refrigerant that contained harmful CFCs. We decided to build the unit with R-507 refrigerant. Not only would this allow us to use an HFC refrigerant, but would decrease the replacing chiller size by 50%, all while using the same refrigerant as the 87' CPBs (Patrol Boats).

In February 2003, ISC St. Louis gave us a work order for $15K to design and build the new chiller. In March, I traveled to Dubuque to meet with the EPO, MKC Detring, and to inspect the WYACONDA to determine the best approach for installation and measure to see what physical size unit could be installed as a "drop-in" unit to minimize the amount of down-time to the cutter. Two problems immediately became apparent. The first was that the ladder to the engine room could not be removed easily. Several electrical components had been installed and it would take a couple of days just to remove and reinstall them. The second problem stemmed from the first. Without being able to remove the ladder, we were severely limited to the size of the unit we could build and still get it into the engine room in one piece. After closely measuring om

determining the maximum size I thought we could build, I took several photographs to aid in the new construction. Once I had an idea of how we would get the unit into the engine room and determined the size we could build, I returned to New Orleans.

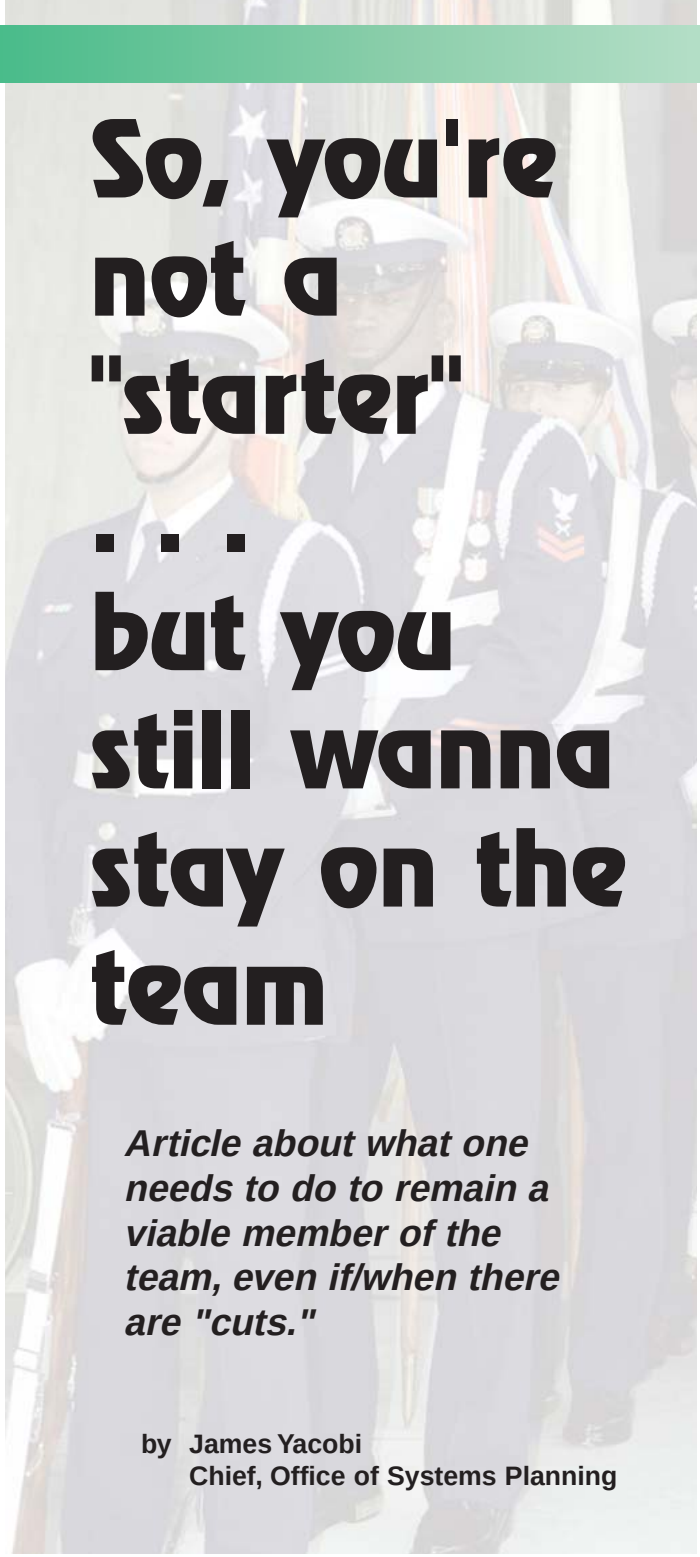
Back in New Orleans, planning began on the design and and how to build the new system. An order was placed with a local vendor for all the major components needed. While waiting for the components to arrive, we gave the ISC New Orleans weld shop a design for an aluminum frame. At this point the frame was just a box built to the maximum size we could fit into the engine room. Once the major refrigerant and electrical components arrived, MK1 Smith, MK2 Christopher Stokes, from the HVAC Shop, and I began to determine how to best fit each component into the frame for ease of mounting, installation and accessibility for future maintenance and repair. Once we determined where each component would best fit, the frame was taken back to the weld shop to have brackets installed -- this took several attempts while working closely with Mr. Lee Perkins from the weld shop. One item that worked in our favor was that the new components were 50% smaller than the old ones, this helped to greatly reduce the overall size of the new system.

While the HVAC shop worked to install the refrigerant piping, I designed the electrical system. Once the wiring diagram was finished, and checked for errors, all that was left was to build the main control panel and install the motor starters and related electrical controls. This proved to be the easiest part of the design because we modified the electrical panel used on the 7.5 ton chiller for this project. Once Petty Officer Smith and Petty Officer Stokes finished brazing in all the refrigerant components, a pressure test was performed and a deep vacuum was pulled on each individual system. Each system was evacuated three times and held a vacuum of less than 200 microns for over 24 hours. A holding charge was then placed on each stage. After all systems checks were completed, the system was prepped, primed and painted.

On 14 June 2003, we traveled to Dubuque to install the new system on board the WYACONDA. With the aid of the ship's force we were able to remove the old system in about three hours. We then removed all the rungs of the ladder going into the engine room (the new system had been built to fit inside the ladder and the rungs had to be removed to gain the height necessary) and used a chain hoist to lower the new unit into the space. The rest of the first day's installation was used to mount the system and determine the best way to install the electrical power. After tracing out the old electrical wiring, we found that the old controllers mounted on the bulkhead were no longer necessary. This required the removal of the existing controllers and rerouting all the power wiring from the controllers to the new chiller. On day two we managed to get all the raw water piping, chill water piping and electrical power installed. The final day, day three of installation, we finished installing the actuating lines for the controls and gauges and started the system to charge it with refrigerant. Once the system was fully charged, we let it run long enough to settle in while making adjustments to the hot gas bypass and the water regulating valves to maintain the pressures we had previously determined to be accurate. After a short running time the system had dropped the chill water temperature to 44 degrees and began to cycle off. The temperature controls and hot gas bypass valves were adjusted to maintain designed minimum pressure and temperature -- after four hours the system was working as designed.

On Sunday morning, the fourth day, I made two trips to the cutter to check on the operation of the system -- the system continued working as designed. I checked out with the cutter and gave them instructions on how to contact me in an emergency. We then returned to New Orleans with the satisfaction of a job well done.

So, you're not a "starter" . . . but you still wanna stay on the team



Article about what one needs to do to remain a viable member of the team, even if/when there are "cuts."

by James Yacobi
Chief, Office of Systems Planning

Our "starting team" happens to be mostly active duty Coasties. The rest of the team, while valued, must constantly compete and strive to improve and do their best. Not everyone is willing to be a second stringer. Putting in a great performance when coming into the game, off the bench, is no easy feat. By the same token, managing the team can be equally difficult when you have so many good players and only so much playing time available.

Next season (to continue the sports analogy) the team is going to get smaller. The owner (OMB (Office of Management and Budget)) has indicated we are carrying too much payroll and must start next season with a smaller team. Knowing the complexion of the team is going to change, you are faced with a decision … leave the team and find another team or work harder and smarter to make yourself more valuable. Most of us would prefer to stay on our team as we are loyal and know our team-mates and the system here on Team Coast Guard.

Given that is the case, what can we do to make ourselves more valuable? Certainly we can spend more time improving our skills. We can work to be a better team-mate. We can spend more time going over the plays and studying the opposition, etc. There are a host of things we can do to improve our value to the team. Both as individuals and as a team, we must agree to work together to do what is best for the team. That will not always be what is best for individual team members.

Within the analogy, competitive sourcing, A-76, privatization, Deepwater or whatever is the impetus to reduce the team size/payroll. These are largely external influences. Resisting them is not completely futile but might well be wasted time and energy. Understanding them for the bureaucratic behemoths they are and working within the new framework is critical to our ability not only to stay on the team but to continue to play a valuable role and contribute.

There are many things we can do both as individuals and as an organization to reduce the potential impact of all of the above external influences. The better we understand the missions and the more effectively and efficiently we do our jobs, the more likely we will continue to have a spot on the team. Be accepting of the new players on the team. Once on the team, they are team-mates and we all have the same goal.

What does this mean to me specifically? Well, you can expect a policy from Systems that will better delineate some things you can do for yourself and some that we will do together. The best summary of what we can do is that you should be aware/informed, be realistic, be prepared and be competitive. ST

Dockside Installation of Prototype WHEC Chiller Unit, ISC Alameda Industrial

by LT Christopher Milkie
Industrial Manager
USCG Integrated Support Command, Alameda

When USCGC BOUTWELL (WHEC 719) returned from Operation Iraqi Freedom, it was greeted with an aggressive naval engineering project worklist to recover form its extended deployment and prepare for future missions. Among the projects was a prototype installation of a new #3 chiller unit. Normally, this work is accomplished when a cutter is hauled-out by cutting through the ship's structure. In this case, the Engineering Logistics Center (ELC) specified a modular replacement unit, where all components were designed to fit through existing scuttles, doors and hatches. Integrated Support Command (ISC) Alameda Industrial successfully completed the removal and installation project on-time, on-budget, and the new unit performed superbly in BOUTWELL's subsequent South Patrol.

Industrial personnel proceeded on the project knowing that this was the first time such an installation was undertaken. Partnering with the Maintenance and Logistics Command Pacific (MLCPAC), ELC and manufacturer's representatives was key to determining the technical requirement on this new system. Industrial personnel realized that there were still many uncertainties in the installation and therefore planned and worked extensive overtime, successfully negotiating all changes to the original installation plan. Because OE (Operating Expense) projects do not have to pay for Industrial direct labor expenses, MLCPAC(v) [Naval Engineering Division] was able to complete the installation for approximately $60,000 (does not include cost

of new units which were purchased by the ELC) -- a substantial savings over commercial contract, especially considering the number of change orders which likely would have been encountered for a prototype installation.

Almost as important as evaluating the new system, the prototype allowed two of the existing compressors to be immediately utilized to correct two other WHEC CASREPs (High Endurance Cutter Casualty Reports). These compressors had recently come in short-supply and were no longer manufactured.

The prototype installation is proving one possible alternative for the rest of the FRAM-W WHEC fleet, while simultaneously buying some time on their current configuration. The installation would not have been as successful without the full support of BOUTWELL's crew and MLCPAC(v). ISC Alameda Industrial is looking forward to supporting follow-on air conditioning installs and partnering for future prototype system installations for high-quality, prompt and lower-cost installations of new equipment.

For any questions regarding the installation, please contact ISC Alameda Industrial at (510) 437-3285.

New unit ready to go.

Rigging old unit out of machinery space.

Key Lessons

Work with unit on rigging route early and often.
Work with ship's force to understand any potential issues on interfacing systems.
Budget for most conservative approach regarding hotwork.
Make frequent use of technical support for prototype installations.
Plan so new systems are tested early in a Charlie period.
Status briefings to unit, command and program customer at least weekly.

Removed Chiller

Capacity	41 tons
Manufacturer	York Air Conditioning
Refrigerant	R-134a

Prototype New Chiller

Capacity	50 tons
Manufacturer	Carrier Air Conditioning
Refrigerant	R-134a
Controls	Microprocessor

Moving ISC New Orleans

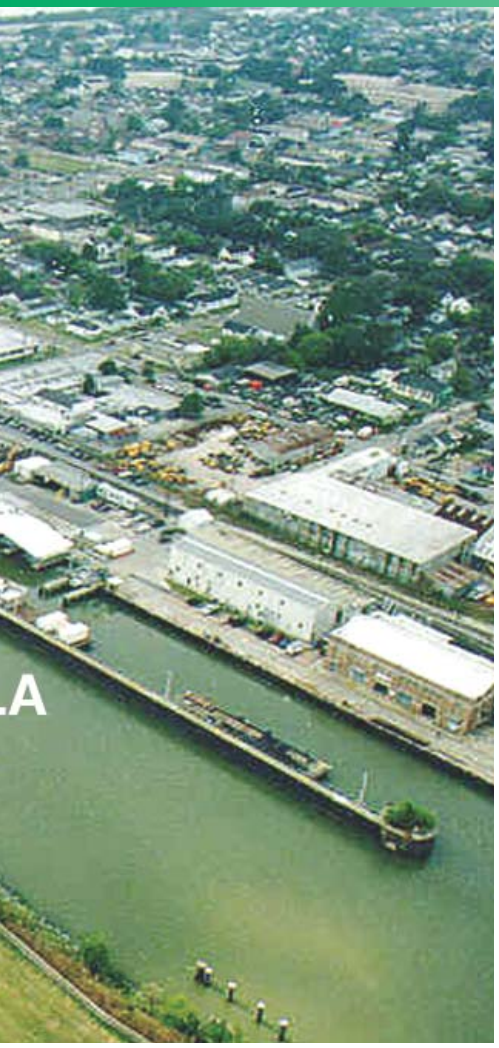
by CDR Joanne McCaffrey
Civil Engineering Division
Maintenance and Logistics Command PAC

USCG Integrated Support Command New Orleans, Louisiana (ISC NOLA) is located alongside the Industrial Canal Lock, an aging, 80-year old facility connecting the Mississippi River, Inner Harbor Navigational Canal and Gulf Intracoastal Waterway. Due to a planned U.S. Army Corps of Engineers (ACOE) project to significantly expand the overall dimensions of the lock, the existing ISC NOLA site will be partially submerged and rendered unusable for its current functions. As such, it will be necessary for the ACOE to relocate all existing ISC NOLA functions to a new site (or sites) outside of the affected area.

The ISC NOLA site, includes approximately 125,000 gross square feet (GSF) of buildings and associated waterfront structures. The ACOE plans to fund the relocation of all existing Coast Guard functions to new facilities, including costs associated with design and construction, completion of appropriate National Environmental Policy Act (NEPA) documentation and moving expenses.

ACOE will relocate Coast Guard functions from the current ISC NOLA site to new facilities on a "one for one" basis. The ACOE will not construct additional facilities to house new functions or increase the size of the new facilities in order to increase their capacity or capability beyond current levels. The intent of the ACOE is a functional "replacement in kind." Further construction to "right size" undersized existing functions or to support new missions will be the responsibility of the Coast Guard. No billets changes will occur as a result of the relocation.

The potential relocation of ISC NOLA has been exhaustively evaluated since 1997 when the 1997 ISC NOLA Long Range Development Plan was completed. However, funding for the ACOE project has been tenuous. In 2000, the ACOE hired a consultant to work with the Coast Guard to develop an ISC NOLA and Tenant



Command Relocation Project report. Both documents outline space requirements and evaluate potential relocation sites. Most recently, a Planning Proposal for relocation was completed and submitted to the Coast Guard Chief of Staff (G-CCS) for approval. In all, 24 possible relocation sites and several potential 'reorganize while relocating' options (e.g., relocate all functions to one site, split functions among several new sites, lease space instead of constructing new buildings, etc.) were considered.

To facilitate possible scenarios, functions might be distributed to separate sites, ISC NOLA and tenant command functions were grouped into three categories, based on the type of work and the environment required:

1. Administrative Facilities include offices, medical and dental clinics, galley, barracks, Coast Guard Exchange Services facilities, etc. These 'clean' functions (relative to the industrial functions described below) consist largely of office-type space. Optimally, these spaces should be located in proximity to District Eight, its largest customer.

2. Industrial Facilities house functions that provide district-wide Aids to Navigation (ATON), naval engineering and civil engineering support. Primarily, these functions require shop spaces and associated storage.

3. Waterfront Facilities are inherent to many ISC NOLA and tenant command functions. Optimally, such facilities should be located within the center of Group New Orleans' Area of Responsibility (AOR), as they support both Group New Orleans units and visiting Eighth District vessels.

RELOCATION ALTERNATIVES

Due to the scope of the ACOE project, a Status Quo option to remain in the current location is not possible. Proposed alternatives included:

1. Relocate all functions (Administrative, Industrial and Waterfront) to a single new site in the New Orleans area.

2. Relocate Administrative functions to leased space in the New Orleans Central Business District (CBD) and relocate Industrial and Waterfront functions to a separate site.

3. Relocate Administrative and Waterfront functions to a new site (or sites) in the New Orleans area and distribute Industrial functions between several Coast Guard sites along the Gulf Coast.

Potential sites were evaluated using Shore Facilities Capital Assets Management (SFCAM) Guiding Principles. This relocation could be a great opportunity for the Coast Guard to completely replace an aging facility at a very low cost. Life-Cycle costs to the Coast Guard are limited to follow-on AFC30, Energy and AFC43 costs. Acquisition, Construction and Improvement (AC&I) funds are not required because the costs of relocation and new construction will be borne solely by the ACOE.

NEXT STEPS

The next steps in the relocation effort include:

1. Commandant (G-CCS) approval of a relocation alternative.

2. Completion of Memorandum Of Agreement (MOA) negotiations with the ACOE for replacement and relocation of all displaced CG facilities to the approved location(s).

3. Coordinate and track the ACOE project to ensure that CG needs are fully accommodated, including no disruption of services.

Shore Facility Capital Asset Management (SFCAM) for Alaska LORAN Station

by CAPT Virginia Holtzman-Bell
Facilities Design and
Construction Center Pacific

View of LORSTA Tok from one of the towers in the four tower array.

In December 2001, Civil Engineering Unit Juneau submitted a comprehensive Shore Facility Capital Asset Management (SFCAM) plan for the six Long Range Aid to Navigation Stations (LORSTAs) in Alaska. It was the first Total Ownership Cost (TOC) analysis of a system in a region from the facilities viewpoint. Although the study is over a year old, it is being profiled here to highlight the cost of support in remote locations and show how a change in the concept of operations can significantly reduce the cost of support. Author's Notes have been added to update where we are on the plan.

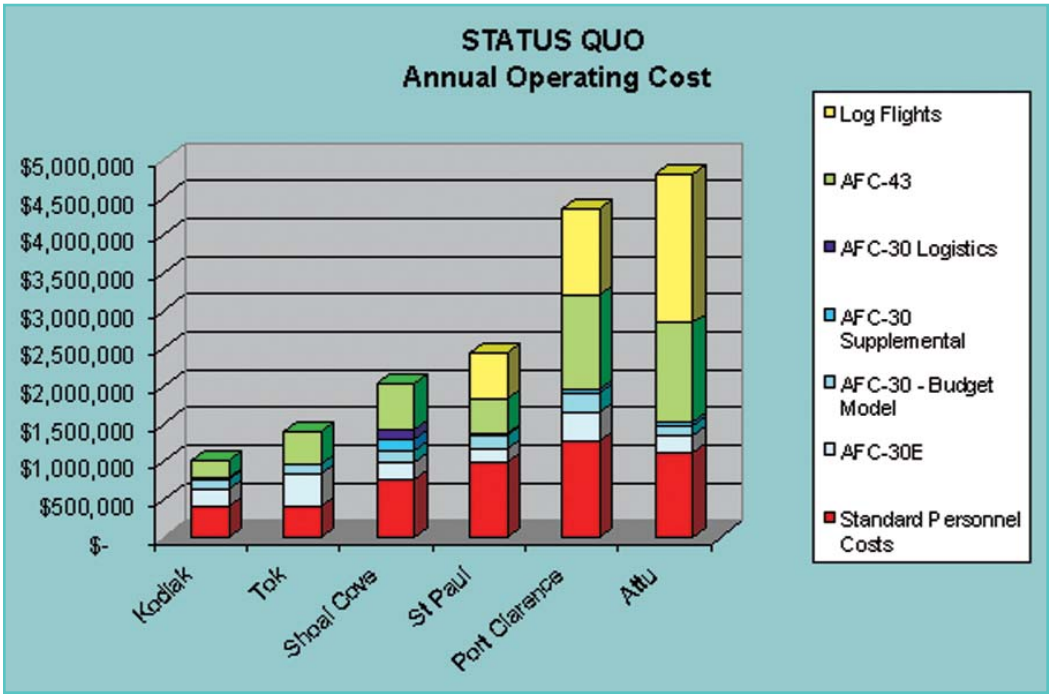
LORSTA Port Clarence buildings and fuel farm.

Right Facility, Right Place, Right Time, Right Cost

Overview:

The future of LORAN remains uncertain; but there is a strong indication that the system will be continued through 2008 with additional political pressure to commit to extend LORAN through 2015. The Coast Guard (CG) has agreed to continue to fund the operating costs of the system. The Federal Aviation Administration (FAA) is providing funding to the CG for "recapitalization" of the system.

- The CG's current annual operating cost for the six Alaska LORSTAs is over $16M a year. (See “Cost of Support” side bar.)
- Over $59M in recapitalization projects is required for the LORSTAs to continue to operate as "manned" stations. The current scope of the civil engineering portion of the FAA funded Long Range Aid to Navigation (LORAN) Recapitalization Project (LRP) is limited to



The Cost of Support

The typical "Lower 48" LORAN station has a solid-state transmitter (SSX) and 4-to-7 personnel to ensure the transmission of the signal. This is possible because these stations exist within communities, on electrical grids and the station personnel live in a community with full range of services available.

In Alaska, this is not the case.

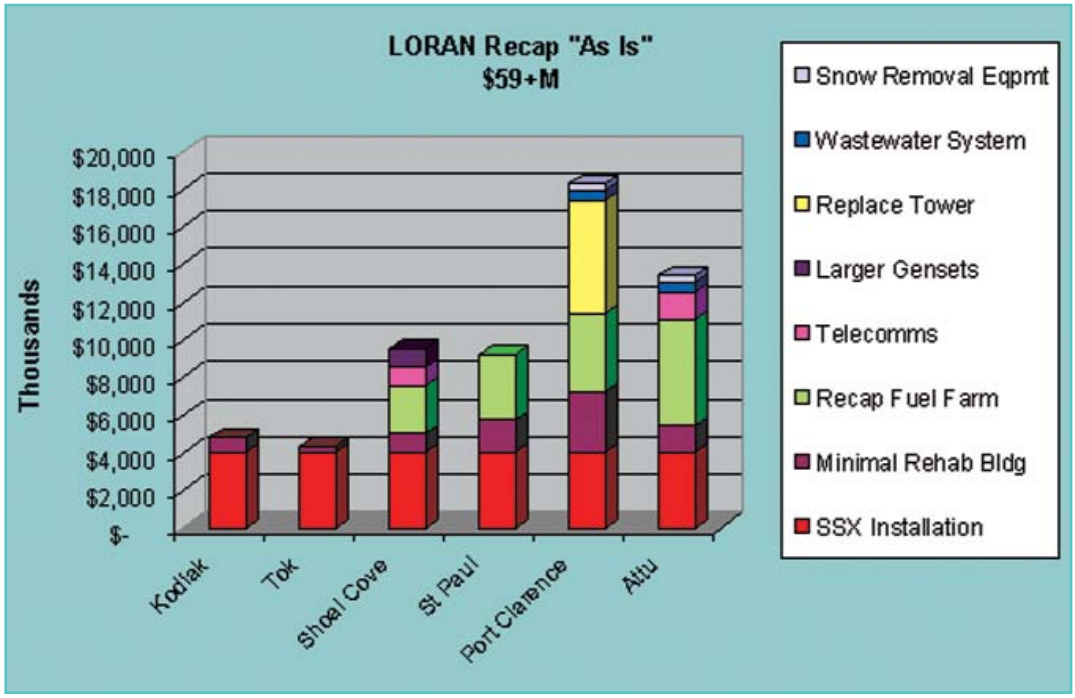
TUBE-TYPE TRANSMITTERS (TTX): The LORAN stations in Alaska use vacuum tube technology in their transmitters. TTXs are less reliable and require more maintenance than the SSX. The LORAN Recapitalization Project (LRP) plans to replace all TTX with SSX.

POWER: Only Tok and Narrow Cape (Kodiak) LORAN Stations are on the electrical grid and are so able to be staffed at the 7-person level. The rest of the stations must generate their own power. Their generators use 100,000s of gallons of fuel annually, requiring them to maintain very large fuel farms that come with stringent EPA regulations for compliance.

Cost of Support (Cont'd)

WATER & SEWER: The remote LORAN Stations start to become, small villages in the Alaska wilderness. They must maintain water and wastewater systems to comply with environmental, health and safety regulations because there is no community utility network.

ACCESS: LORSTAs Attu and Port Clarence can only be accessed by the CG owned and operated runway. These runways are their 'life line" and must be kept free of snow so that they can received their bi-weekly C130 delivery of supplies. Any snow accumulation could jeopardize an unplanned medevac so snow removal is a constant winter activity. The CG 130 uses the St Paul airport relieving the LORSTA of the airport maintenance responsibilities. LORSTA Shoal Cove personnel commute by chartered aircraft or vessels transiting from Ketchikan to the remote cove 20 miles away; then drive a 5-mile poorly maintained National Forest logging road to the LORAN Station. The full crew lives at the station during the week, taking alternate watch on the weekends so some may return to Ketchikan to be with their families. LORSTA Narrow Cape's crew drives the 35 miles to the LORSTA from Kodiak every day where the benefit from local ISC and ESU support. LORSTA Tok is closest to the "Lower 48" model with the crew and their families living in CG owned housing.



the installation of the new Solid State Transmitters (SSX) and the replacement of the Port Clarence tower -- approximately $30M.

The CG has an opportunity to leverage LRP funding to redefine the concept of operations for LORAN in Alaska. There are significant cost avoidance opportunities. The recommended course of action in this SFCAM Plan will save approximately $100M through 2015 if adopted.

Window Of Opportunity

The CG Civil Engineering Program needs to align the LORAN facilities with the new LORAN requirements. In Alaska, there is a limited window of opportunity to accomplish shore facility modifications to significantly reduce Total Ownership Cost (TOC). Three projects occurring simultaneously have created this opportunity.

1) **Port Clarence Tower Replacement:** Scheduled for replacement in 2002, it appears to be delayed to 2003 due to lack of funds availability in time for summer construction.

*(**Author's Update:** The tower project was not funded in the CG's Fiscal Year 2004 (FY04) Appropriation. As it appears to be delayed indefinitely, we are planning on replacing the insulators on the existing tower in the summer of 2005.)*

2) **Fuel Farm Recap:** A recent report on the condition of the fuel farms in Alaska indicates a need to invest $15.5M in the recapitalization of these fuel facilities unless we change the method by which we power the stations. The condition of the fuel farms and the history of fuel spills makes a delay of decision ill advised.

***(Author's Update:** All critical repairs have been made, however extensive work is required to achieve best management practice.)*

3) **LRP:** LRP will pay for a certain level of shore plant work at the LORSTAs. The LRP funds can

be leveraged with an SFCAM analysis for significant cost avoidance in CG Acquisition, Construction and Improvement (AC&I) expenditures.

Seizing the Opportunity

To achieve minimum TOC, five strategies are recommended.

1) Convert LORSTA Saint Paul to commercial power and provide District 17 (D17) additional energy funds for the cost of electricity as opposed to fuel oil.

Commercial power is readily available for the LORSTA. Connection to the city electrical grid avoids $160K in immediate repairs and $3.45M of fuel farm modifications to come into compliance with environmental regulations.

Author's Update: *The conversion to commercial power was completed in December 2003. Additional energy funds are being provided by D17 to cover the cost differential.*

2) Connect LORSTA Shoal Cove to the Swan Lake Hydroelectric power grid.

The inter-tie will require a capital investment of between $1.5M and $2M; but avoids $78K in immediate repairs and $2.53M of fuel farm modifications to come into compliance with environmental regulations. This is an environmental stewardship and energy conservation measure as we convert from a non-renewal hydrocarbon fuel source to a renewable energy source.

Author's Update: *A feasibility study of this option was funded in September of 2003. The report is due in the spring 2004.*

3) Align the shore plant with the new concept of operations for the LORAN system -- PALS III -- remotely operated contractor-supported LORAN sites.

Commercially powered, smaller, sustainable facilities are key to this concept of operations. This scenario avoids the recapitalization of the administrative and support facilities for the LORAN Station, as it becomes a LORAN site.

Author's Update: *FDCC Pacific is currently designing and constructing the next generation LORSTA to replace these TTX stations. Hands off operation was tested at LORSTA Jupiter Inlet. However, no policy decision has been made to remote the LORSTAs. Thus, the cost savings that results from reduced billets may not be realized unless automated Loran comes to fruition.*

4) Move LORSTA Port Clarence to Nome.

This move can be accomplished at virtually no CG capital investment costs. It avoids fuel farm, runway and station building work totaling over $18M. It achieves further savings associated with unmanning the station. The station cannot be "unmanned" at Port Clarence. Anticipated recurring savings exceed $4M per year.

Author's Update: *A Planning Proposal has been approved for the move. The NEPA consultation is currently being worked along with a review of potential*

Cost of Support (Cont'd)

TRASH REMOVAL: The remote LORAN Stations in Attu and Port Clarence maintain their landfill to deal with household refuse. Shoal Cove follows the boy scout method of "pack it in, pack it out." The other LORSTAs use community landfills.

SELF SUPPORT: The larger the infrastructure to maintain, the larger the crew. The generators, fuel tanks, pumps, water and waste water systems, snow removal equipment, dump trucks… The result is you need technicians beyond the typical ET, MK and SK assignments to keep the facility in good working order. This results in more MKs, EMs, BMs, and DCs being assigned to the unit. With the increased complement, you need people to take care of people, so FSs and HSs join the crew. The size of the organization leads to increasing range of grade structure from Warrant Officers to non-rated personnel to keep the "village" running. To borrow a phrase, "it takes a village" to run a LORSTA.

"OFF ISLAND" SUPPORT: The support costs don't stop at the station's fence line. D17 pays logistics costs in the form of C130 hours or chartered boats and planes to keep these units supplied. Additionally, the ISC, CEU and ESUs provide support. The more remote the unit, the larger the facility, the bigger the crew, the greater demand on the MLC units supporting them. The LORAN SFCAM study accounted for the Total Ownership Costs up to and including direct logistic costs and AFC-43 costs for facility repairs but it did not try to pry out all the costs throughout the support organizations.

sites in Nome. However, the project will not gain too much momentum until funding is identified.

5) Approach the U.S. Air Force (USAF) to cost share operations at Attu.

The USAF has an operation on Attu that is highly automated and cannot be moved. Once the Remote Automated Integrated LORAN System (RAILS) is in place, the LORAN signal will be highly automated. The USAF has a contractor that maintains its remote systems in Alaska. The CG should approach the USAF to cost share both the capital improvement costs for Attu as well as the recurring costs to remain on Attu. This is not unprecedented; the USAF requires the FAA to cost share in the operation of USAF sites where the FAA has equipment.

Author's Update: *Navigation Center (NAVCEN) and Loran Support Unit (LSU) are looking at alternative locations for this site as the concept of e-LORAN is being developed.*

Lowest Total Ownership Cost (TOC)

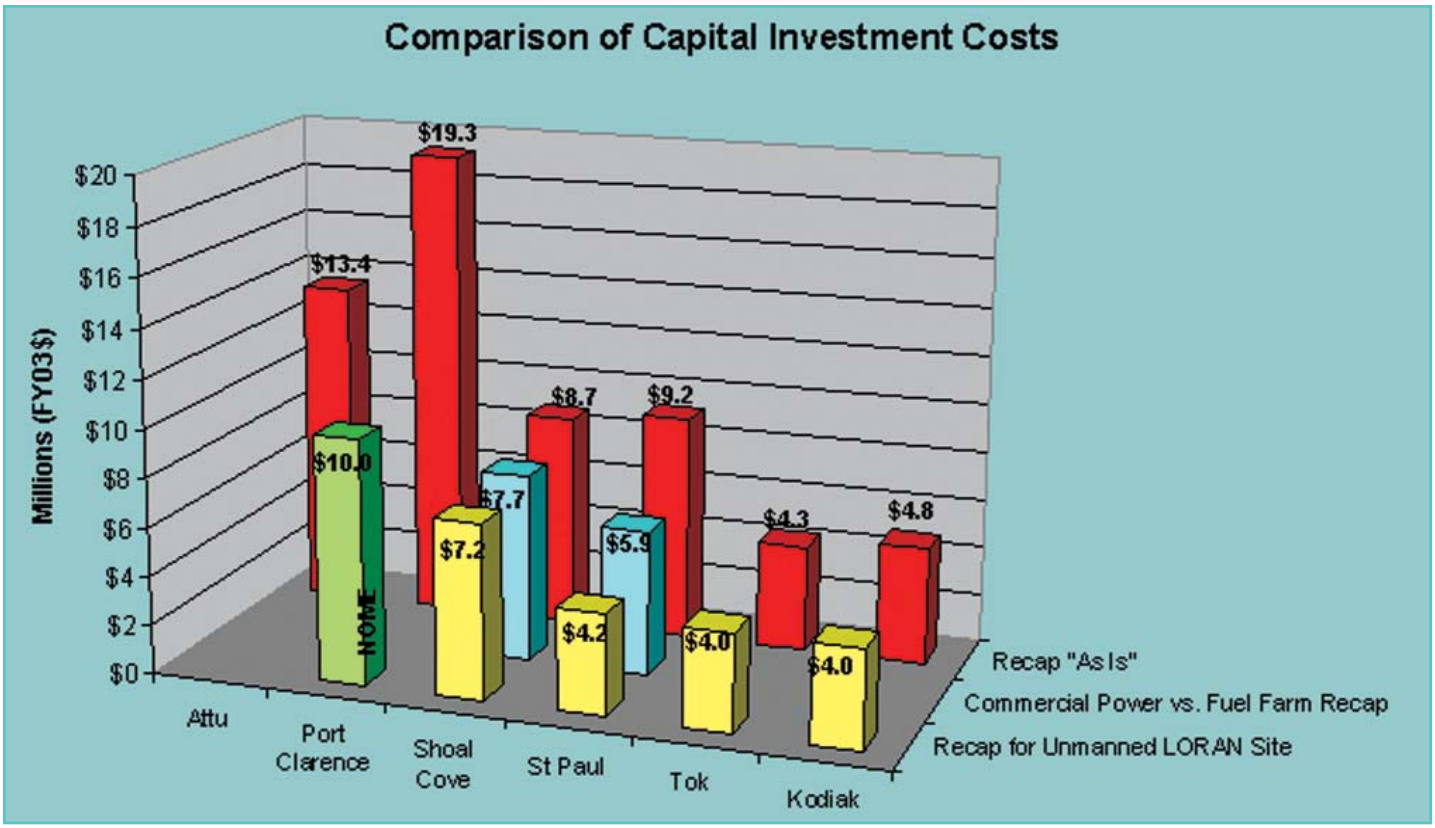
Recapitalization of the LORSTAs to continue to operate *"As Is"* with minimal changes in the concept of operation is anticipated to be quite expensive -- over $59M. (The cost to recap *"As Is"* is shown in the chart below in red.)

Taking advantage of the strategies previously described will decrease the capital investment costs as indicated below:

- The cost to tie into commercial power (in blue) shows a marked decrease from the recapitalization of the fuel farms at Saint Paul and Shoal Cove.
- The recapitalization for *"unmanned"* LORAN sites (yellow) reflects a further decrease in the anticipated recapitalization costs.
- Relocation of LORSTA Port Clarence to Nome (green) is the single largest cost saving action.

If the stations are recapitalized for *"unmanned"* remotely operated contractor-supported LORAN sites, the recapitalization costs can be decreased by $30M.

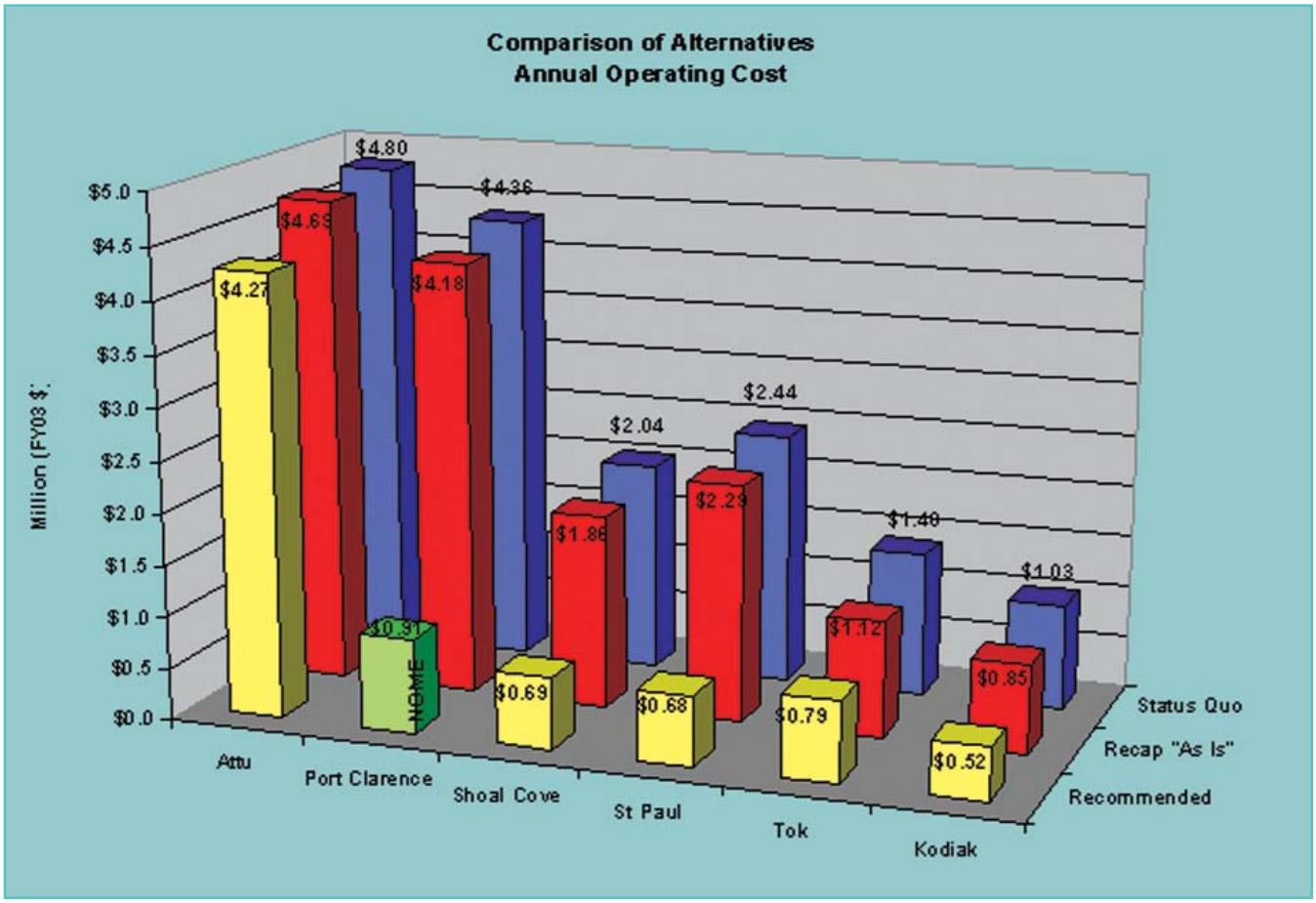
As previously mentioned, the annual operating budget for the six LORSTAs is approximately $16M. The potential for recurring savings are significant.



Attu's runway and complex as seen from the tower.

- Recapitalization *"As Is"* reduces the cost by a small measure due to the decrease of the Personnel Allowance List (PAL) at each station by one first class petty officer (E-6). Additionally, the solid-state transmitters are more energy efficient, resulting in a decrease in energy consumption. This will result in an annual savings of just over $1M.

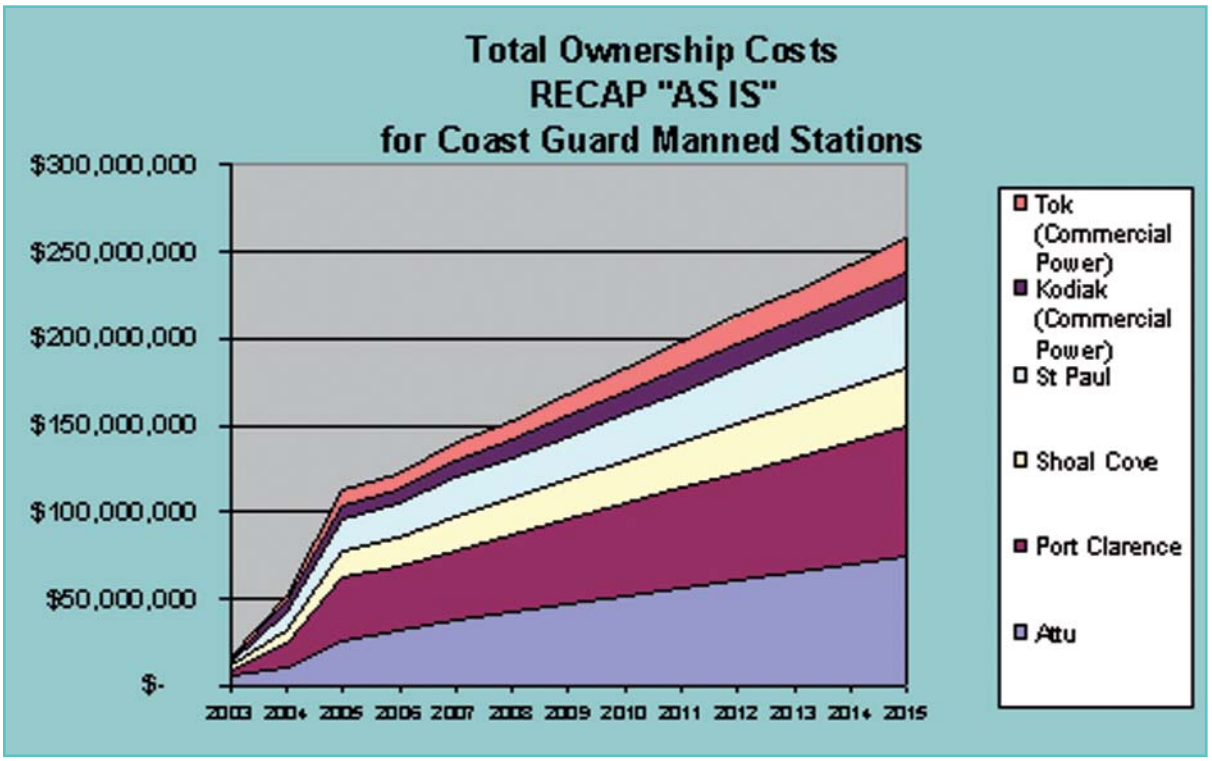
- Recapitalization for *"unmanned"* LORAN sites at all locations, except Attu where a contract crew would be required, has the greatest potential for cost avoidance. Over 80 billets and hundreds of flight hours would be available for reprogramming. There would be direct cost avoidance in Allotment Fund Control Code (AFC) -43 expenditures as the shore infrastructure shrinks in size. The elimination of an Operating Facility or Operating Facility Code (OPFAC) results in significant AFC-30 savings and many indirect savings that are not captured in this analysis. The overall annual costs drop to less than $7.9M. In the final analysis, Attu, at $4.3M, represents over 50% of the total annual cost for the six LORSTAs. As such, it is appropriate to pursue the 5th strategy outlined, to have the USAF share the cost of the Attu operation.

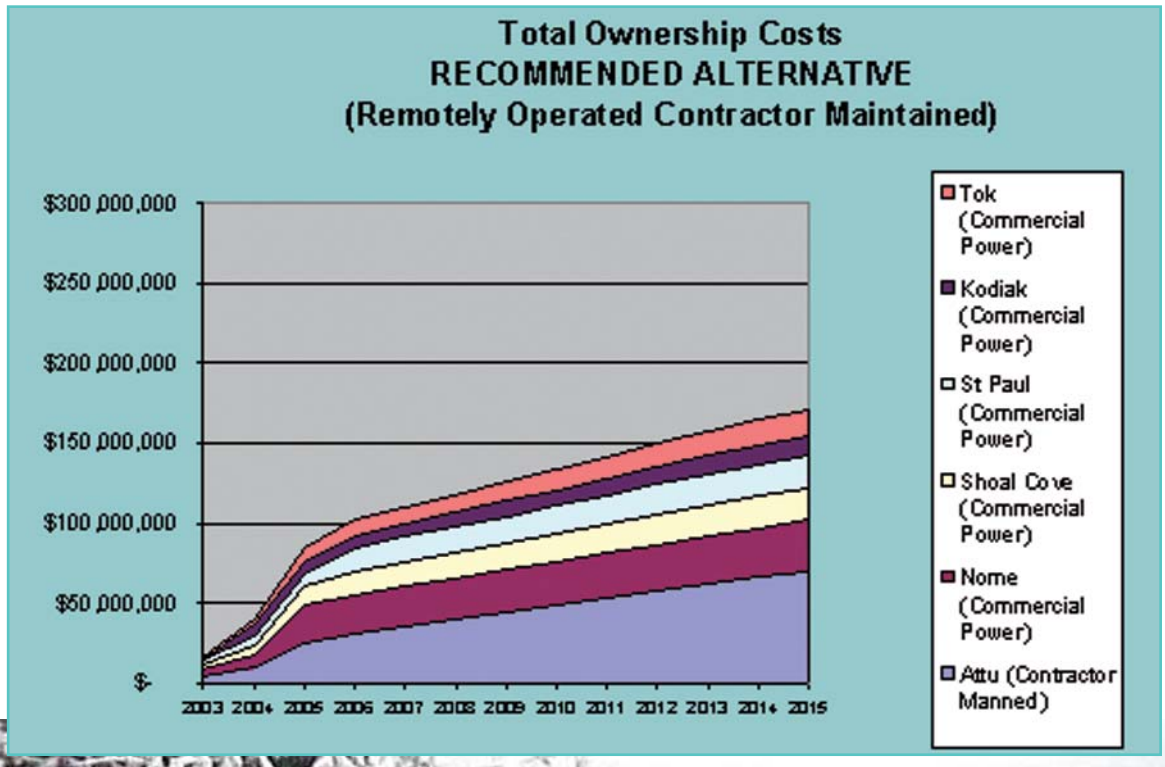


Recapitalization "*As Is*" for a simple TTX to SSX conversion does not realize the opportunities for decreasing the TOC, the greatest cost savings are generated by revisiting the concept of operations and support.

The lowest TOC (initial and recurring costs) for the Alaska LORAN system can be achieved if we align the shore program, the LRP and the future concept of operations. This report shows that, the least expensive capital investment can actually result in the lowest future operating costs.

There are strategies to reduce the costs associated with operations in Attu that should be considered such as "All-in-View" LORAN or "cost share" operating cost with the USAF.





Look at that snow! Drive to Shoal Cove in winter conditions. Note the snow bank.

LORSTA Port Clarence from tower. Note: The tunnel from station complex to transmitter building at base of tower which shelters personnel from snow and severe winter weather.

Author's Note: Where are we today?

Due to the uncertainties associated with the future of LORAN, the Office of Plans and Policy (CG-8) has not approved or disapproved the plan. The request to program this plan into the AC&I Shore Facilities Requirements List will not be approved until the future of LORAN is resolved.

Additionally, much of the savings identified in this report is realized by remotely operating LORAN. Although many of the ideas stated in this report will save money and reduce billets, the final costs savings will not be as great unless the policy decision is made to fully automate LORAN and remove all billets from each site.

Civil Engineering Unit Juneau has had to begin some extensive "recapitalization" where the cost can be kept below $925,000 Alaskan Operating Expense (OE)/AC&I threshold.

- The wastewater treatment plants are being replaced due to imminent failure: Port Clarence (FY03), Shoal Cove (FY04) and Attu (FY04).

- In this past winter, the snow removal equipment at Attu, Port Clarence and St Paul were constantly being CASREPed [Casualty Report]. Replacement of the equipment is being scheduled.

- Annual maintenance contracts are being put in place for elements of the building that are failing, but due to age and cost, it would require AC&I funds for replacement. Each year, we expect a contractor to repair Attu's roofs and Port Clarence's tunnel.

New Technology For Homeland Security

by Dottie Mitchell
PAO, Coast Guard Yard

In 2003, the Coast Guard Yard completed a design modification and manufactured components for the MK10 Surface Launched Running Gear Entanglement System (RGES), a prototype non-lethal system that halts high speed boats in their tracks. Mounted on a modified machine gun mount, the RGES box contains a high pressure air cylinder that launches a special net. This net, manufactured from the same material used in bullet-proof vests, entangles a boat's propeller; stopping it on the spot. The Yard has manufactured five Running Gear Entanglement Systems for testing. The project currently calls for the Yard to complete an additional 20 systems in the coming months. A static version of RGES -- the MK11 Static Barrier RGES -- can also be deployed around a ship in port to counter a terrorism attack.

1

Loading the Surface Launched Running Gear Entanglement System with an entanglement net and an high pressure air cylinder, readying the system to fire.

2

The entanglement net is launced from the RGES box.

3

The RGES entanglement net deploys.

4

The RGES entanglement net deploys across the water.

5

The RGES's net entangles a boat's propeller; stopping it on the spot.

C4+IT

CATCHING UP ON THE EMERGING IT TREND: WEB SERVICES

by CC Wang
Office of IT Systems
and Infrastructure CG-631

For years, IS teams have faced a thorny problem: how to flexibly modify, increment and connect heterogeneous applications to meet the requirements of business. The Web Services paradigm has emerged as a powerful mechanism for integrating disparate IT systems and assets. Combining the best aspects of component-based development and the Web, Web Services leverage a concept known as Service-Oriented Architecture (SOA).

A "service" is a network-enabled component. Like components, services in general (and Web Services in particular) represent functionality that can be easily reused without knowing the details of how the service is implemented. And, since Web protocols are completely independent across vendor, platform and language implementations, the result is an application that integrates well with the rest of the enterprise while being flexible enough to modify as business needs change.

What is a Web Service?

A Web Service, derived significantly from component technology, is a software system designed to support interoperable machine-to-machine interaction over a network. It has an interface described in a machine-processable format, specifically Web Services Description Language (WSDL) and the Universal Description, Discovery and Integration (UDDI) registry. Other systems interact with the Web Service in a manner prescribed by its description using Simple Object Access Protocol (SOAP)-messages, typically conveyed with HTTP using an XML serialization in conjunction with other XML-related standards.

Much of what Web Services are attempting to do is not new -- rather, it is largely an attempt to redo it, better and simpler. Like the Web itself, Web Services are the simple underpinnings. Web Services are about adding basic programmability to the Web.

Use of any of the basic technologies -- SOAP, WSDL or UDDI -- constitutes a Web Service. Use of all of them is not required.

A Pre-Web Services World

Before Web Services, Internet computing and e-commerce were based on the exchange of information through Enterprise Application Integration (EAI). Developers created one-time, proprietary solutions for system integration. A new, often makeshift solution had to be developed each time two companies wanted to interchange data.

The introduction of Extensible Markup Language (XML) was an important step to simplifying the application integration process. XML enables developers to separate the content of data exposed over the Web from its presentation. A predefined markup language like HTML defines a way to describe information in one specific class of documents. XML, on the other hand, lets you define your own customized markup languages for different kinds of documents. This means that data can be easily exchanged, not only among humans through Internet browsers, but also among computers. More importantly, XML has been widely accepted as the universal language of choice for exchanging information over the Web and is a public format (that is, not the proprietary product of any company). As a result, individuals can develop new standards for specific functions based on XML or XML-based standards.

Enter Web Services World

Web Services have emerged as the next generation of Web-based technology for exchanging information. Web Services are modular, self-describing, self-contained applications that are accessible over the Internet. Based on open standards, Web Services enable you to build Web-based applications using any platform, object model and programming language that you require. Put another way, "Web Services allow any piece of software to communicate with a standardized XML messaging system."

The modularity and flexibility of Web Services make them ideal for application integration. Businesses can mix and match Web Services with minimal programming. Web Services can easily function from various simple requests such as retrieving a currency conversion and a weather report at http://www.xmethods.com to a more complex business systems at http://www.capeclear.com/salesforce/ that access and combine information from multiple sources. Once a Web Services is deployed, other applications and Web Services can discover and invoke that service.

How do Web Services work in the real world?

To describe how Web Services work in the real world, a sample Web Service Model can be established as follows:

Step 1: A service provider registers its service with a registry that is maintained by a service broker. The service broker represents a set of software interfaces (a registry service) for published Web Services.

Step 2: The requester makes a call to the broker's UDDI registry, seeking a desired service and instructions on how to call it.

Step 3: Once the requester finds the right service, the service broker returns the service's location details to the requester.

Step 4: The requester is ready to invoke the service by making a SOAP call to the service provider. WSDL describes the request's format -- its parameters and data types.

Step 5: Finally, the provider delivers the Web Service application results to the requester. The transaction is complete.

With an established Web Service Model, a sample Web Service can be processed as follows:

A hospital's legacy mainframe billing system uses a personal wallet service to fill in the details of a patient's payment method. The hospital application (the service requester) sends the patient's PIN as a SOAP message. Based on that parameter, the personal wallet service (the service provider) returns the patient's credit information. XSLT can format the records for delivery into the hospital's legacy system.

Later, a notification service (service requester) calls on a hospital calendar service (service provider). The calendar service has the details of a patient's physical-therapy schedule, and through a SOAP service call, the notification service can request a schedule from the calendar service to notify the nurse and patient of the appointment.

Why develop Web Services?

A technology introduction isn't complete without a bulleted benefits list. After all, why do we adopt new technology if not to enjoy some benefit? Here are five major compelling reasons to develop Web Services:

- Interoperable - By operating on the "system boundaries" (that is, outside of private company

networks), Web Services achieve a higher level of commonality than has previously been available. For developers, this means that the applications and services they build will enjoy a long life span, outlasting their proprietary equivalents. Web Services permit the use of a vast array of clients -- Java, C++, .NET, JavaScript, Perl and so on. Furthermore, Web Services extend beyond these language-based clients to collaborate with Web standards organizations.

- Easy to use - Using Web Services, the business logic of individual systems can be exposed over the Web. Developers or business analysts can compose a custom, client-side solution to a particular business problem by combining the Web Services that they require. Not only can Web Services developers use their own programming language, but also their own component object model, architecture and implementation strategy. As long as developers adhere to Web Services standards, they can share functionality across the Web without knowledge of their target system's environment.

- Reusable - Because of the component-based model of Web Services, they can be reused whenever necessary. Additionally, Web Services can enable the extension of existing code so that it can be exposed over the Internet.

- Consumable by both humans and computers - Web Services have been developed to be easily accessible by both humans (for example, through a desktop application) and computers (for example, through an API).

- Ubiquitous - Because Web Services are provided over the Internet, they are accessible from anywhere and use existing infrastructure. Furthermore, because of the standards they are developed with, Web Services respect existing security systems such as firewalls.

In addition, Web Services have significant value as we seek to exploit the benefits of Real-Time Enterprise (RTE). They save money by making repositories and data logic reusable. Once properly managed, they offer flexibility because of their basis in robust and mature standards. Web Services benefit enterprises seeking to improve their real-time credentials and performance because they encourage and enable information to travel between applications. Enterprises should not force Web Services onto all RTE-related projects, or even onto all projects with a service orientation. However, the general usefulness of Web Services and their extensibility make them particularly suited for many aspects of application integration. Failing to use Web Services where it's the best solution would be a costly mistake.

What should we do next?

Although the universal integration and the provision of seamless Web Services are a few years away, many organizations are preparing by taking a practical, developmental approach to their Web Services adoption. Those who take a "wait-and-see" or "do-nothing" attitude may be at competitive risk.

To best prepare to catch up to the Web Services world, it is recommended that the sooner the following practical steps be taken, the better for all of us:

- Learn about Web Services technologies and standards, and evaluate the impact of Web Services on your existing information technologies environment.

- Develop a road map to control and drive the implementation of Web Services through your organization. Focus on managing business partners and involve them early in the process.

- Consider the various ways in which Web Services can be enabled such as designing a new application to be Web Service capable, wrapping an existing application or leveraging leading enterprise application integration tools.

- Look for value-creating implementations, focusing on both non-mission critical internal applications or on projects involving external partners that do not require higher levels of security or robustness as well as specific mission-critical applications.

It is also recommended that we should evaluate the assets and data they already have in light of Web Services-enabled capabilities to:

- Package reusable corporate information technology assets, such as personnel or cost information. Web Services opens up accessibility to information in backend systems creating new options to use that information in different ways.

- Develop new applications by reusing existing application components. In the past, the only way to add functionality to legacy systems was to rebuild from scratch. However, the very nature of Web Services means the flexibility now exists to easily add functions to legacy systems or to connect to other systems.

- Improve customer services. For example, Web Services can change the function of customer services by integrating customer, cost, product and services information so the targeted services can be provided more easily and efficiently to the customers. The connectivity and integration made possible by Web Services has the potential to spur business growth by fueling mobility in the short term and universal connectivity in the longer term.

It was also recommended by Gartner that CIOs (Chief Information Officers) pilot two key RTE technologies in 2003 -- Web Services and instant messaging (IM). The enterprise that sits on the sidelines while its competitors explore Web Services will risk allowing them to open a strategic business lead that will be hard to close. Moving to a service-oriented architecture approach is not simply a matter of spending money on new software -- it is a new model requiring significant cultural and philosophical changes for application development and deployment.

With the successful implementation of Web Services, I think we can be proud to promote the motto: "Make IT efficiency today and enjoy powerful business solutions tomorrow."

Conclusion:

Web Services are the integration technology of the future. As they are well recognized to provide good ROI value and will grow to be one of the most important parts of an organization's IT strategy and infrastructure, it is recommended to start leveraging the benefits that Web Services currently offer and position Web Services as the foundations of the future enterprise architectures.

Efforts/Activities within Government Agencies:

- http://www.web-services.gov (Government Semantic XML Web Services Community of Practice (SWS-COP)- Federal CIO Council)
- http://www.coolheads.com/egov/combined/topicmap/s569/img17.html#N1 (Government Web Services activities)
- http://xml.gov/presentations/epa3/webservices.ppt (Multi-government Perspective: XML Web Services and the XML Collaborator for Building Federal, State, and Local Content Networks)
- http://webmap.socialchange.net.au/news/20011106_5.html (OGC Announces Kick Off of OGC Web Services Initiative- Open GIS Consortium, Inc)
- http://www.xml.gov/documents/completed/wswg1/eforms.htm (E-Forms for e-Gov: The Use of XML Standards-based Applications- GSA)
- http://oaspub.epa.gov/edr/xml$.startup (EPA Environmental Data Registry)
- http://www.fgdc.gov/fgdc/coorwg/2002/xml_files/frame.htm (XML Web Services: Support for the Geospatial Information One-Stop - Federal Geographic Data Committee)
- http://www.estrategy.gov/presentations/umd_e-gov_ent_arch/sld001.htm (Enterprise Architecture: ebXML and Web Services)

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Building the Coast Guard's Common Operational Picture for Maritime Domain Awareness

by LCDR Robert Todd Hannah and
Mr. Jeffrey McDowell
Office of Command and Control Architecture (G-OCC)

A single U.S. Coast Guard (USCG) Common Operational Picture (COP) is the primary means for display and use of Maritime Domain Awareness information. The USCG COP is not a single computer system or application, but instead, is a conceptual collection of many diverse data sources brought together into a single, common and managed information space that can be shared wholly, or filtered into discrete relevant pieces, among multiple commands at multiple leadership echelons, and displayed or used on multiple interoperable systems.

The USCG COP Working Group has defined the COP as "a display of relevant information shared by more than one command. The COP provides a shared display of friendly, enemy/suspect, and neutral tracks on a map with applicable geographically referenced overlays and data enhancements. The COP contains a decision maker toolset fed by a distributed and exchanged track and object database(s). Each user can filter and contribute to these databases according to their area of responsibility or command role. The COP environment may include distributed data processing, data exchange, collaboration tools and communications capabilities. The COP may include information relevant to the tactical and strategic level of command. This includes, but is not limited to, geographic information systems data, assets, activities and elements, planning data, readiness data, intelligence, reconnaissance and surveillance data, imagery and environmental data. A common operational picture facilitates collaborative planning and assists all echelons to achieve situational awareness."

Background

Over the last two years, numerous initiatives have begun or are in progress that seek to improve Maritime Domain Awareness. Some of these include establishing local port level surveillance and sensor systems (Joint Harbor Operations Centers, Project Hawkeye); upgrading capabilities in Area, District and Section Command Centers with Global Command and Control Systems; funding USCG Mobile Command Centers; expanding classified network connectivity to the port level; combining M & O functions at new Integrated Maritime Command Centers; and establishing the Inland Rivers Movement Center to track hazardous cargo carrying barges on the Western Rivers.

These initiatives, as well as the two major USCG transformational procurements of Rescue-21 and Integrated Deepwater System all have one common linkage; they all converge at the one USCG COP.

A Shared Vision for a Single USCG Common Operational Picture

The need for a vision to integrate and make interoperable these and other future efforts was clear. Last year, the Office of Command and Control Architecture published a plan that laid the foundation for COP interoperability. The published **Command and Control (C2) Vision and Implementation Plan** *The Keystone for Achieving Maritime Domain Awareness* that described an information flow architecture for COP track data and provides an extensible framework for integration of future COP efforts. Implementation and refinements to the COP architecture first published in the C2 Vision are overseen by the USCG COP Working Group.

Today, significant progress in implementing the vision of a single USCG COP has been accomplished. The underpinnings for a Common Operational Picture were physically established with classified network expansion to the port level; upgrades of each Area, District, Group and Section USCG Command with the latest Global Command and Control System (GCCS-J) hardware and software under the Command Center Recapitalization Project; and other COP systems support and information management contracts which are now being executed.

COP Architecture Described

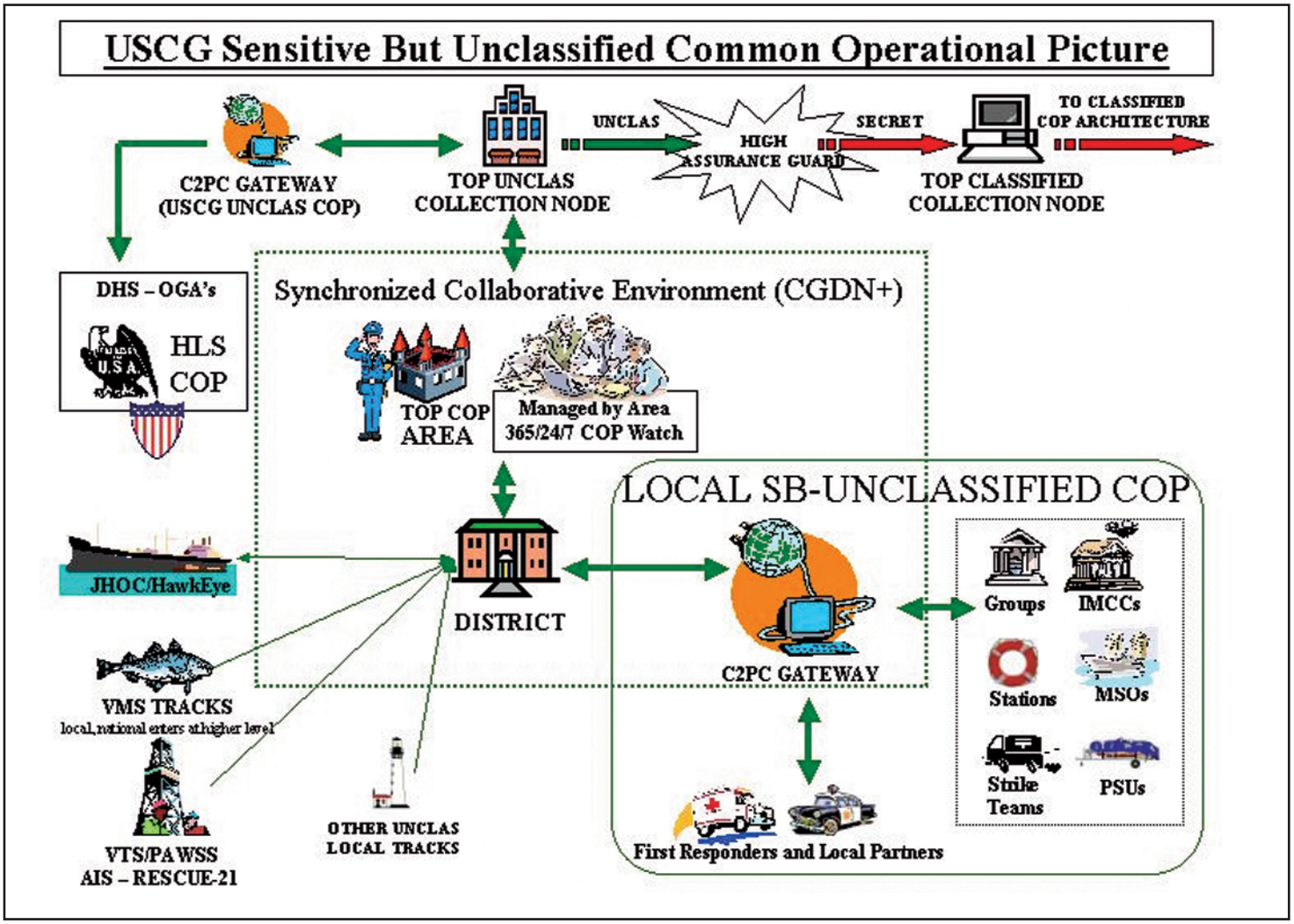
The following describes a logical information flow architecture for the movement of COP track data. All USCG COP track information is sent to and collected at COP track database servers, then pushed up to a single point where a Top COP manages the information. This Top COP node is responsible for correlating tracks, resolving ambiguous data and properly labeling data in accordance with COP Standard Operating Procedures. The clean picture produced by the Top COP is then redistributed across all network nodes in the COP Synchronization Tools (CST) collaborative environment. The CST environment with a Top COP node reduces the burden of information management at lower echelons, while at the same time, it also does not limit child nodes from performing these functions such as adding or deleting local track data. Redundancy is built into the CST as every node on the network can assume Top COP functions if any one node goes down.

Moving data collected at the unclassified level up to the classified high side occurs through a High Assurance Guard (HAG). All unclassified track data sources can be correlated at the Top COP prior to being pushed up through the HAG. Once the data is on the classified side, it can be moved anywhere on the classified COP network. Figures found on the next two pages describe both the Sensitive but Unclassified (SBU) and classified COP track data flow.

Sensitive but Unclassified COP (SBU COP)

COP consumers who only work with unclassified data (e.g., units without classified network connectivity) will be able to access the SBU picture from collection servers before the data goes to the classified high side. This solution is called a Sensitive but Unclassified COP system (SBU COP). A collection server located at each District will aggregate all SBU data feeds in the District's AOR. To reduce the time latency of the SBU data and network load, the collection server will also act as a gateway providing the data to Command and Control Personal Computer (C2PC) clients in their AOR. A single SBU COP collection server at USCG HQ will provide a gateway for national level SBU COP consumers (e.g., Department of Homeland Security (DHS)). The information is also forwarded to a High

Figure 1. Sensitive But Unclassified (SBU) COP Architecture.



Assurance Guard (HAG) for transfer to the classified side.

Figure 1 depicts the architecture for the SBU COP (a more detailed description of this architecture can be reviewed in the USCG COP CONOPS).

Classified COP

A single USCG Common Operational Picture is the primary means for display and use of Maritime Domain Awareness information. COP provides "a display of relevant information shared by more than one command" and "a shared display of friendly, enemy/suspect, and neutral tracks on a map with applicable geographically referenced overlays and data enhancements." The complete USCG COP is at the GENSER SECRET level.

The SBU COP information coming through the HAG up to the classified network will be automatically injected into the classified COP. At each Area Command Center, the COP Watch Stander will merge this SBU data with information received from other secure means. This complete COP will then be replicated to secure track servers located at Districts and Sections. USCG Intelligence Centers will also receive the COP that is produced in this collaborative environment.

Figure 2 depicts the architecture for the Classified COP (a more detailed description of this architecture can be reviewed in the USCG COP CONOPS).

The USCG COP: Then and Now

Two years ago, there were only a few supported

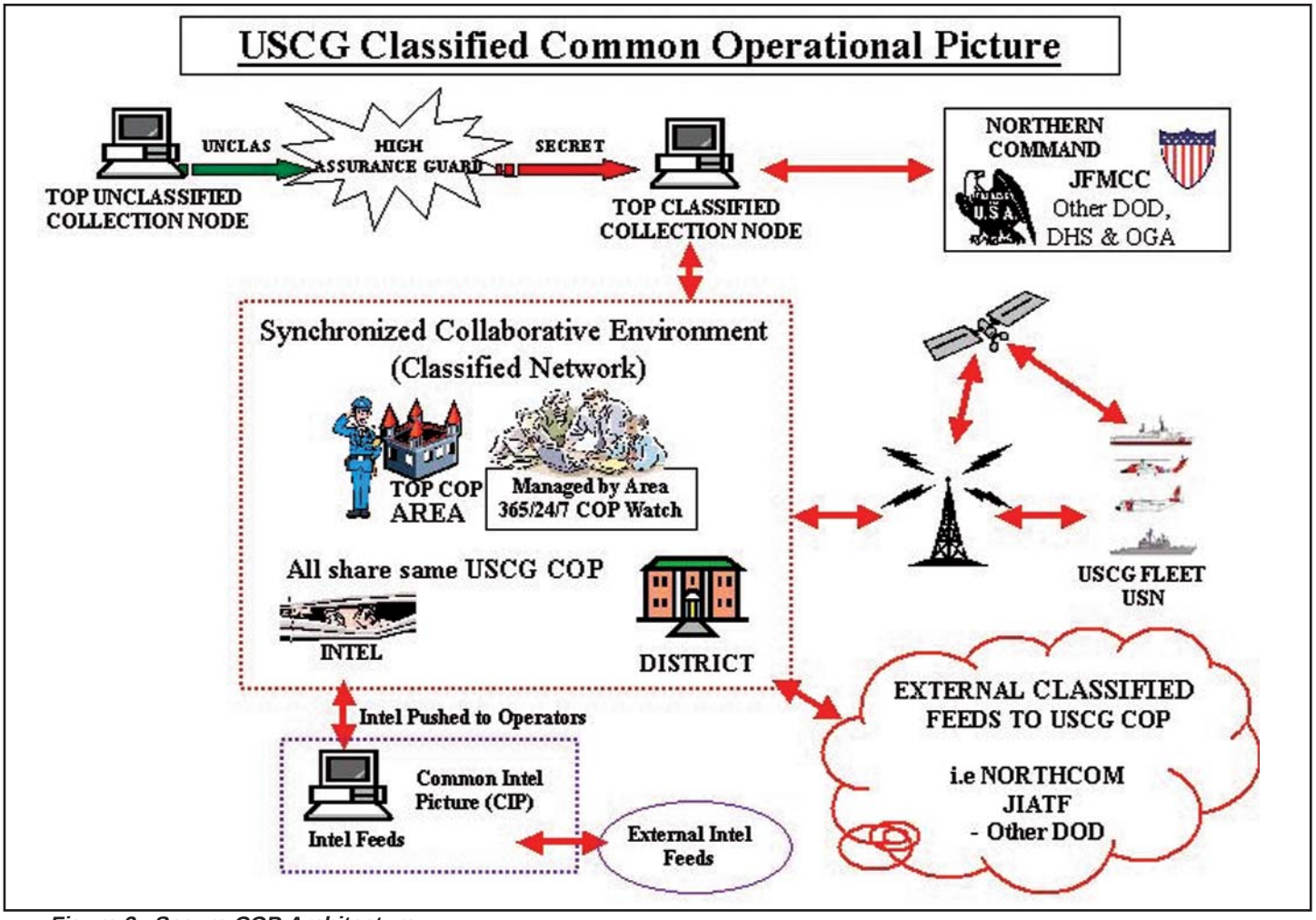


Figure 2. Secure COP Architecture.

COP capable assets, such as capital cutters with the Shipboard Command and Control System (SCCS). Area and District Command Centers had COP capable Global Command and Control Systems acquired with drug supplemental funding, but many of the boxes were unsupported or unused. SCCS capable cutters on patrol relied upon a variety of Department of Defense (DoD) feeds, such as JIATF, for their underway COP picture because there was no USCG specific COP. Today, that has changed.

Now, a single-managed USCG COP has been established and is available for dissemination to all COP capable assets in the USCG. Track information management of the new USCG COP went live in late 2003 with contracted, 24/7/365, Top COP watches at both the Atlantic Area and Pacific Area Command Centers.

COP Track Data Feeds

The types of track data that can populate the COP is extensive and ever increasing. Today, the USCG builds a single COP from data sources originating both externally from DoD sources and internally from those sources that are exclusively available to the USCG.

Operational Data Feeds: The following are some track data feeds available in the USCG COP today:

- ✔ Classified DoD feeds
- ✔ USCG Cutter and COP capable aircraft track reports
- ✔ Northeast Region National Marine Fisheries Service Vessel Management Service (VMS)
- ✔ Vessel Traffic System (VTS)
- ✔ VTS Valdez - Port and Waterways Safety System (PAWSS)
- ✔ Joint Harbor Operations Command (JHOC)

Future Data Feeds: Solutions for the following data feeds are planned:

- ✔ Other VTS ports
- ✔ Other PAWWS ports
- ✔ CG Inland Rivers (Inland Rivers Vessel

Movement Center)
- ✔ National VMS
- ✔ Rescue-21 National Distress and Response System Modernization Project
- ✔ AIS Automated Identification System

Communications Infrastructure

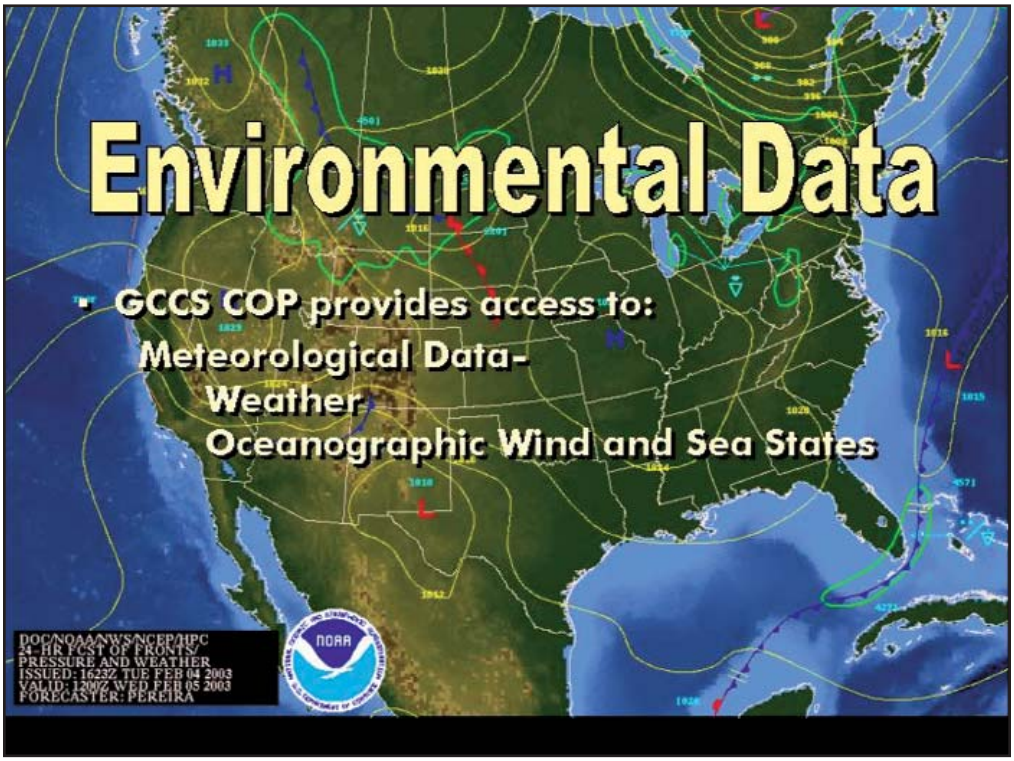
A robust COP depends on a robust communications infrastructure. The COP architecture described assumes a logical, inter-connected network, independent of the actual physical data paths. The communications paths in the architecture are transposable with different improved communications paths as they become available (i.e., classified satellite network connectivity at sea replaces OTCIXS).

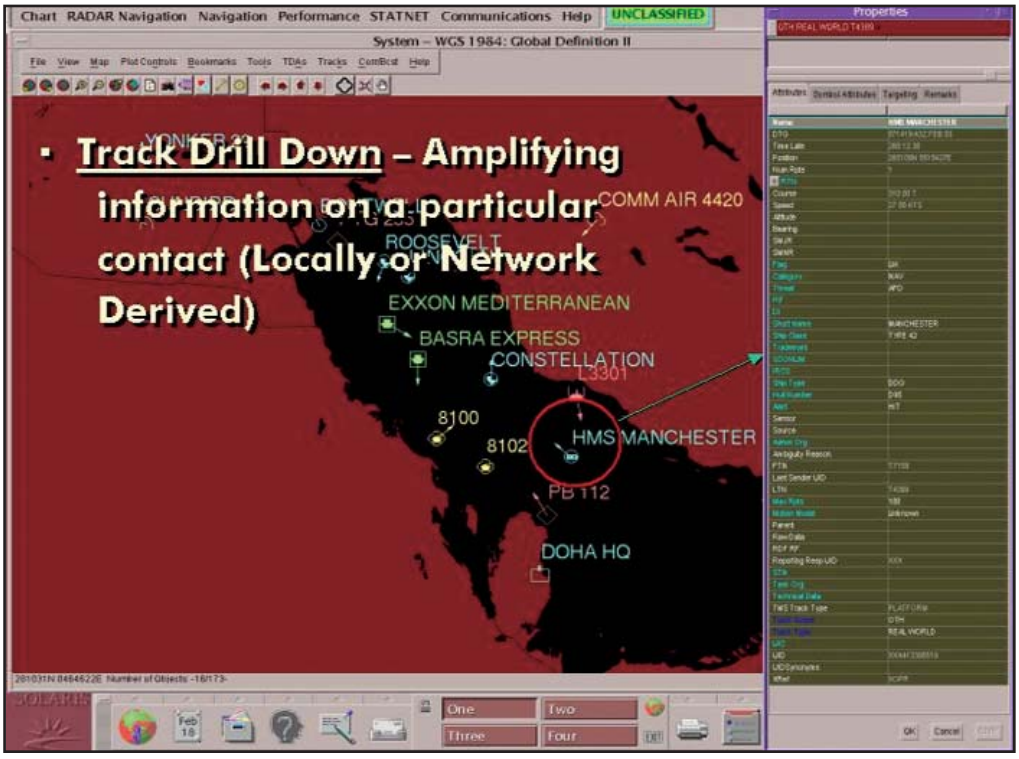
What Can be Done with COP?

As a result of the cooperative efforts of the Command and Control Engineering Center (C2CEN) and partners, the COP is a capable tool for USCG missions. For example:

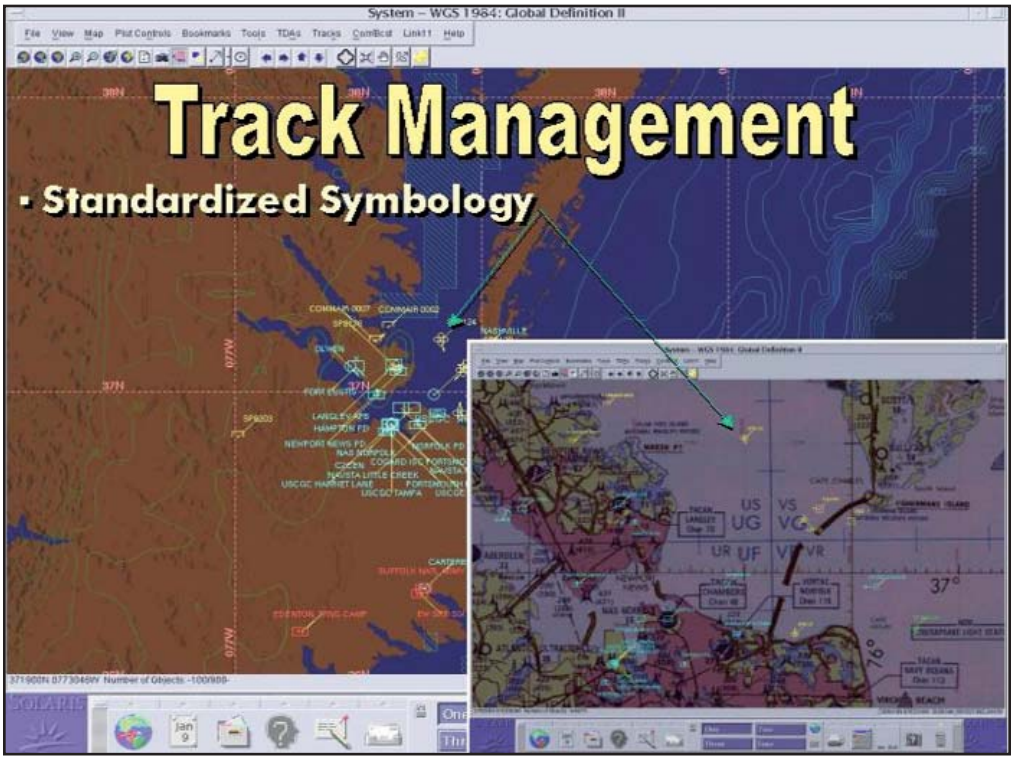
- ✔ A USCGC on harbor patrol in a VTS/PAWWS port could see the same port level track reports that the local VTS/PAWWS sees.
- ✔ A USCGC on a fisheries patrol could see the same VMS track data reports that the Command Center sees, in near-real time, directly in their SCCS system.

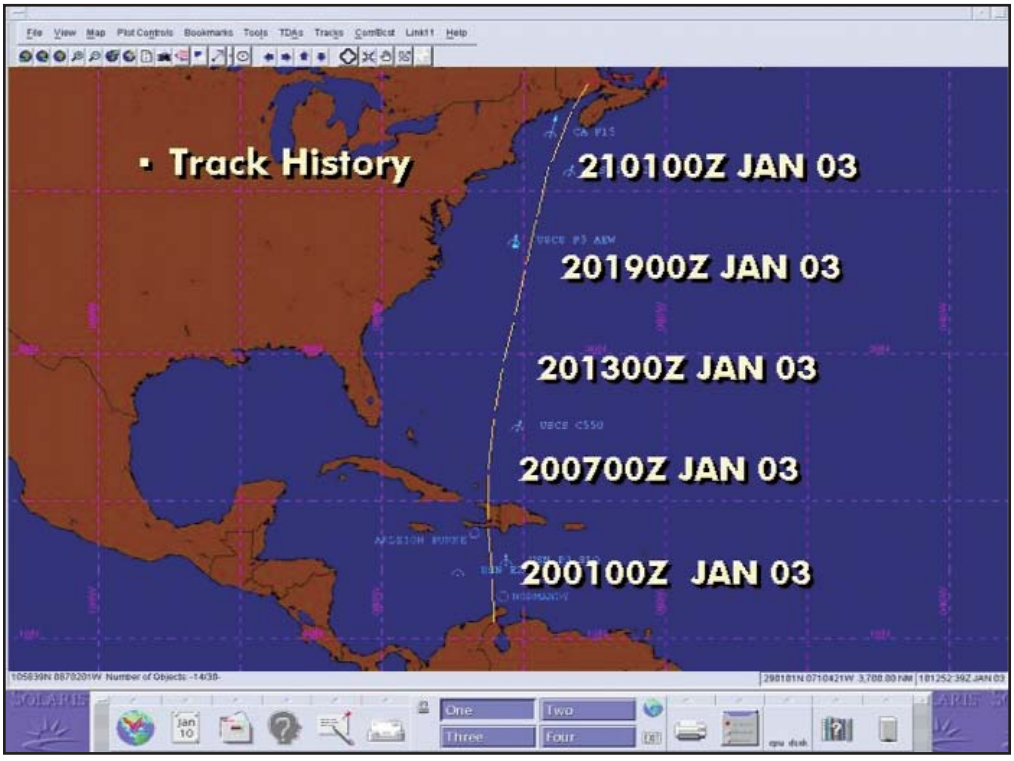
The following series of screen shots display various levels of Maritime Domain Awareness information.





- ✔ A District Command Center could exchange OPNOTES directly with SCCS capable cutters.
- ✔ Any Command Center with classified network access can utilize the full capability of the USCG COP via a Web Browser interface.





- ✔ Online collaborative "chat-rooms" are available for use by all classified connected COP nodes.

- ✔ The USCG can produce a single-managed USCG COP picture that is sharable with our partners in Homeland Security in both DHS and DoD.

The COP Working Group

The key to building a COP is interoperability. In April 2003, a COP Working Group was chartered to provide a forum for coordination and opportunities for integration of the many ongoing independent projects and efforts. The COP Working Group (WG) is chaired by the Office of Command and Control Architecture (G-OCC) and co-chaired by the Office of Response (G-MOR) and membership includes representatives from individual program offices and both Areas. COP WG attendees include industry representatives from major USCG acquisitions including Deepwater and Rescue-21.

The COP WG activities include promulgation of COP doctrine including a USCG-wide COP Concept of Operations, COP Operational Requirements Document and COP Standard Operating Procedures. The COP WG has reviewed technologies and project initiatives both internal and external to the USCG such as the IDS Design and Interoperability Testing Center, and USJFCOM Joint Battle Center.

More information can be found at the COP WG Web Page at http://www.cglant.uscg.mil/c2cen/cop.html.

PROTOTYPE IMPLEMENTATION PLAN FOR A PROJECT MANAGEMENT & BALANCED SCORECARD REPORTING SYSTEM

Article submitted by CDR Robert Pyle
Office of Naval Engineering (G-SEN)

Editors Note: This is Part 2 of a two part series.
Please keep in mind when reading this article, it was submitted in early 2003. Dates are subject to change and may not reflect actual implementation date. Part 1 can be found in the Winter 2004 *Systems Times*.

4. PROJECT PLAN

The project will be designed around four phases, with the first three phases consisting of a prototype within an overall pilot plan starting with a limited development program using a short term license from Oracle for the two Commercial-off-the-Shelf (COTS) products. Phase 4 will then be a full pilot project rollout to projects with an application interface and data migration to input data from all current project applications into the full 125 project prototype system.

Phase 1

The scope of Phase 1 is to:

- ***Establish a Prototype Steering Team*** consisting of key USCG MHLS-IT stakeholders, project managers, administrative staff and other staff to include a sample of all of the types of personnel that will be using a Web-based project tracking and performance management system. As part of this step, there will be a kickoff meeting with the Steering Team and weekly team meetings.

- ***Provide for user requirement analysis*** using a sample of projects to determine the objectives and expected outcomes for project planning, tracking and reporting and translate those finding into a configuration for the Oracle COTS products.

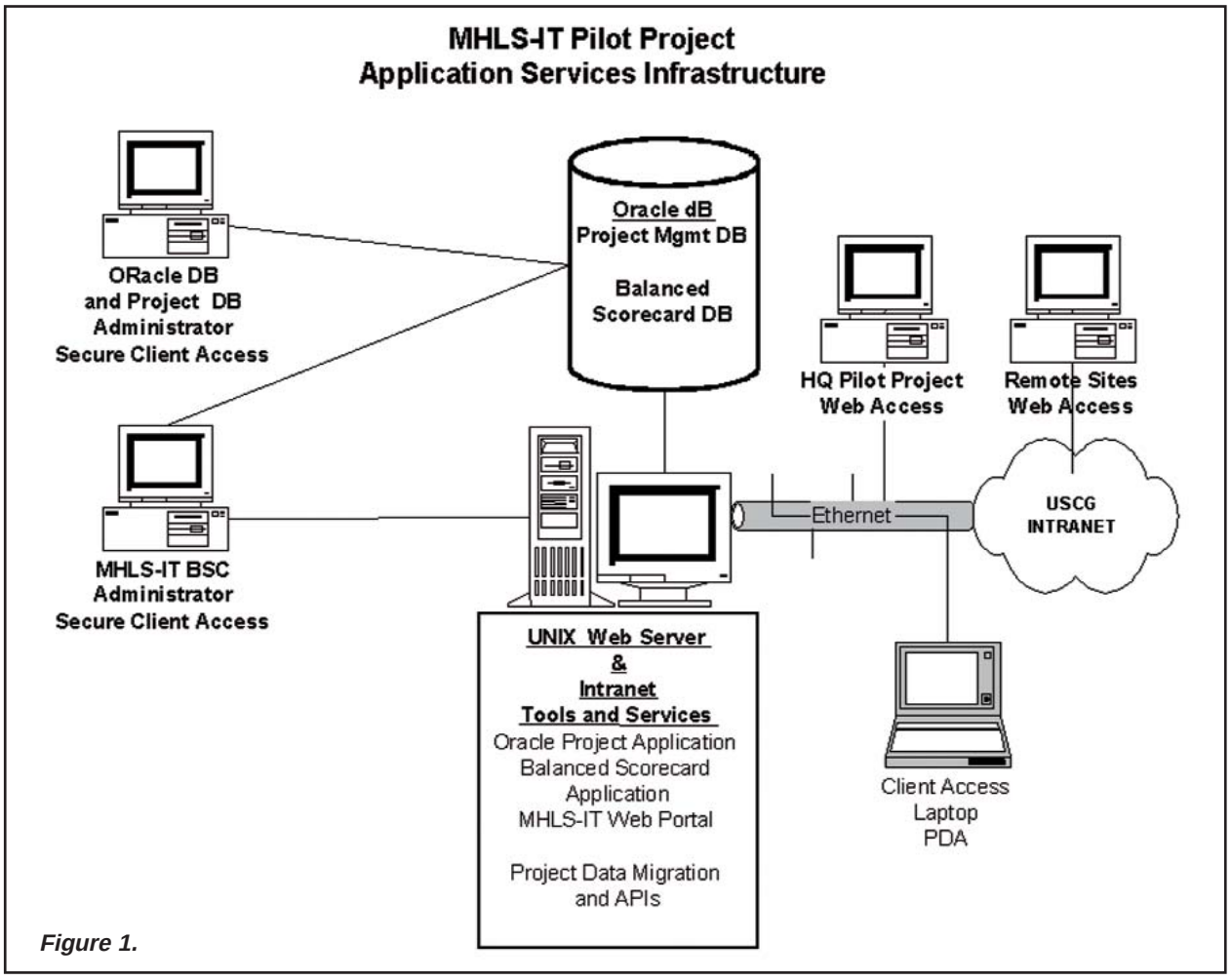


Figure 1.

- ***Survey and evaluate six to eight sample projects*** and project management taxonomy and data for system requirements so that the tracking of projects and project data is consistently applied when using the prototype COTS toolsets.

- ***Install Oracle Project and Oracle Balanced Scorecard on a stand alone server*** as an option pending hosting decisions (one not connected to USCG systems).

- ***Minimally configure the COTS Web interface*** and software for the most common data integration, such as data extracted from existing Excel formats using six to eight current MHLS projects for sample data.

- ***Provide an evaluation of the prototype COTS applications*** with six to eight current MHLS-IT projects and through the prototype support team get input and information on their observations on the use and feel of the products for further evaluation and for later more extensive configuration.

- ***Test*** the COTS products including performance testing, security, etc.

- ***Make recommendations for moving to Phase 2.***

The delivery timeframe for completion of Phase 1 is mid-April, 2003. *Phase I does not include extensive configuration changes to the COTS products Web interface*.

Phase 2

Phase 2 will encompass:

- ***Expand the prototype*** to 20 major projects.

- ***Determine the IT Architecture*** for the full prototype project similar to the three tier architecture for the prototype shown in Figure 1 which will provide for an Oracle database server, an application server, and a test and development server.

- ***Install BSC and Oracle Project on USCG servers*** (Web server and Oracle dB may be implemented on the same server for Phase 1).

- ***Develop expanded data integration capabilities*** to migrate data from all existing project management systems, including Excel, MS project, ePMO, etc. (***Note****: Oracle was found to be weak in the migration capabilities so that will be an added feature*).

- ***Design an expanded Web and user configuration*** for common planning, tracking and reporting process for MHLS projects.

- ***Develop common data sets***, taxonomy and other common elements for tracking MHLS projects based on the six to eight sample project data and information systems.

- ***Configure Prototype BSC and Project on the USCG servers*** and testing the application, including security and user access.

- ***Provide a one day training session*** for staff and project managers on the use of the Performance Management system and Web applications.

- ***Provide desk side support*** for 20 project staff on the use of the COTS products following the one day training.

- ***Establish a Help Desk*** and COTS Administration for the prototype systems.

The delivery timeframe for completion of Phase 2 is mid-May, 2003. Phase 2 of the project includes more extensive configuration changes to the COTS products Web interface. Phase 2 also provides for training of users by late April and early May.

Phase 3

Phase 3 will include:

- Development of ***A Business Case Analysis of the Prototype*** through the first three phases.

- Recommendation for USCG CIO and senior command and management review for the prototype project based on the lessons learned and analysis of the results of Phases 1 and 2.

- Recommendations and Life-Cycle Cost Analysis for a full pilot of the system for all MHLS-IT systems.

- Utilization of the Prototype COTS products and USCG configuration to begin to report consistent and real time project data to senior USCG management and to project and program managers supporting MHLS.

The cost benefit analysis will be completed by mid-June, 2003, to provide for a review of full rollout for the COTS products.

Phase 4

Phase 4 will include an expanded pilot program with the full rollout of the COTS products by mid-June, 2003, to provide support for all MHLS projects. Phase 4 will include:

- Expand the prototype to the full 125+ USCG MHLS projects starting June, 2003, for a full pilot of the system.

- Provide a data migration capability to populate all projects into the Performance Management systems with current data on all active projects available by 8 July 2003.

- Migrate data and information from current USCG Project applications and systems to be used in the prototype application with the ability for all users to either:

  a. fully adopt the prototype applications for project management reporting and tracking of their projects, or

  b. retain their current project management systems, but adapt them with an application interface or data migration from their current project management tracking and data systems that would provide common project data and information for a high level project management reporting system.

- Provide for database administration, Oracle Project and Balanced Scorecard administration of the Prototype systems.

- Update data and information on the MHLS-IT data systems.

- Develop and expand on a consistent project management taxonomy for a common and consistent project management terminology, data and naming conventions so that a cohesive understanding of all project work activities can be tracked throughout USCG.

- ❑ Support Help Desk functions for all BSC and Project Users and make modification and changes to the MHLS-IT Web Portal and Websites.

- ❑ Provide for modification and upgrades from Oracle as they become available as well modify the Web and Portal systems to provide for changes to the systems to support user and MHLS-IT needs and requirements.

- ❑ Continue to survey users as part of Performance Measurement of the systems.

- ❑ Support Configuration Management and control over the application and data systems.

4.1 Assumptions/Constraints

- ❑ The project has an approved start date of 3 March 2003. The target completion date is 30 July 2004 at the end of the pilot and Phase 4 support services.

- ❑ A Prototype Steering Team will be formed to provide user and project manager input and assist in the evaluation and future configuration process. USCG MHLS-IT will appoint and dedicate the necessary resources to provide this key area of support.

- ❑ The project team will have access to staff project management at USCG MHLS-IT for technical and management direction.

- ❑ USCG has the following information available:

  - ❍ IT Architecture and Charter/Strategy
  - ❍ Specific documentation on:

    - project management data systems
    - project life cycle standards
    - project management and budgeting processes
    - project roles and responsibilities
    - project profiles/descriptions
    - existing project management tools used on project teams

- ❑ Approximately six to eight sample projects will be identified for the stand alone prototype Phase 1.

- ❑ Approximately 20 projects will be selected for the expanded Prototype Phase 2 and interview sessions will be conducted.

- ❑ A decision on a hosting location for the COTS applications during Phase 2 can be completed by 15 April 2003 at the latest.

- ❑ Existing project management tools vary across current projects, and no tool has been designated to be the USCG standard at the time the prototype begins. This may include a combination of no project tool to COTS products like Excel and MS Project, along with ePMO.

- ❑ The majority of the work will be completed at USCG Headquarters.

4.2 Project Deliverables

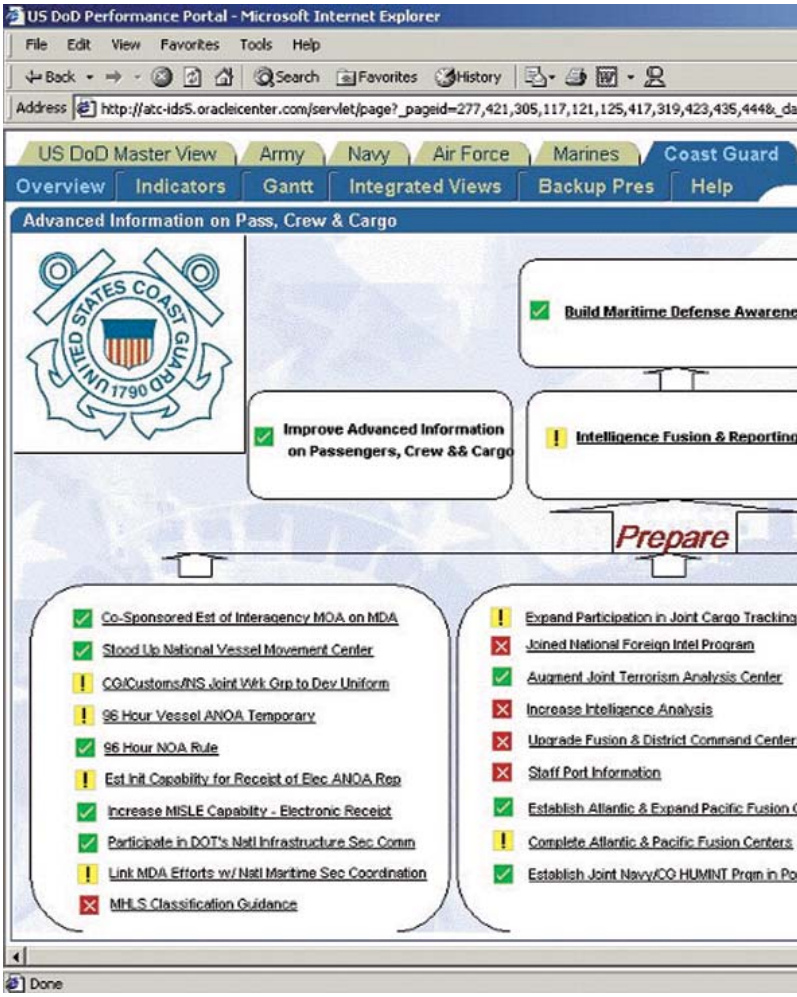
Business Objective Ref. No.	Project Objective Description	Deliverables
0001	Determine from a sample of users the objectives and expected outcomes for project planning, tracking and reporting. Translate those finding into a configuration for the Prototype COTS products.	Survey sample of user requirements and report on the survey. From user requirements, provide a Minimal Configuration for COTS during Phase 1.
0002 and 0003	Install and test Oracle Project for USCG as a prototype project.	Install Oracle Project and BSC on USCG stand alone Server; test; verify security by 21 March 2003.
0003 and 0004	Design, configure and implement the COTS prototype products for common planning, tracking, and reporting process for MHLS projects. Design an interface for transferring data from existing planning tools (Excel, MS Project, other) into the Prototype COTS systems.	Provide minimal configuration during Phase 1 with more advanced configuration in Phases 2 and 3 for user requirements. Design an interface under Phase 1 for the most common current planning tools; expand options in Phases 2 and 3.
0005, 0006, and 0007	Develop common data sets, taxonomy and other common elements for tracking MHLS projects based on the six to eight sample project data and information systems. Well defined terminology will help to articulate project status information to the audience at large. Precise definitions facilitate productive working sessions among manager and project staff.	The deliverable will define a Common Framework, data set, and vocabulary for project management tracking so that this taxonomy facilitates clear and effective communication of project status.
0003-0007	Install BSC and Project on USCG Prototype Production Server with access to USCG HQ staff.	Determine the hosting site by mid April. Install production server by late April 2003.
0008	Achieve management concurrence regarding other potential project management weaknesses that will not be detected by the above processes.	Evaluate the culture of project management at USCG and report on other ways to improve common reporting and process management
0009	Obtain approval for refining and extending the common planning, tracking and reporting solution across the USCG and Department of Homeland Security projects.	Complete Phase 2 by mid-May and provide a User's Guide and Training for USCG MHLS-IT users. Develop a Business Case Analysis by end May, 2003, for the Prototype Project for approval to refine and implement the project for all 125+ USCG projects.
0010	Train USCG staff during the prototype process on the use of the Performance and Project Management toolsets. Also fill a need for some awareness training for project staff in overall project management tools and techniques that will improve overall USCG Project Management practices Use training as a CHANGE MANAGEMENT process to change the project management culture, systems and processes for performance management improvements to the processes of project management for USCG MHLS projects.	Provide staff training to up to 50 project managers and staff on or about 1 May 2003. Support a user help desk function for desk side support starting on or about 1 May. Through the Prototype Steering Committee find other venues to provide training and awareness of project management and balanced scorecard performance management concepts.

The deliverables will also include:

- ❑ Summary of the test and data metrics obtained over the prototype execution period.
- ❑ Recommended approach for refining and expanding the planning, tracking and reporting process beyond the prototype projects.
- ❑ Summary of interview findings, including key issues categories and recommended short-term actions.

4.3 Communications Plan

The Prototype Steering Team will be a key to stakeholder communications and also a method for supporting Change Management in the current project management tracking systems to a new Web-based Balanced Scorecard and desktop toolset used by all USCG MHLS project managers and staff, as well as encompassing reporting to USCG commanders and management.



Commutations with key stakeholders will also be provided by the:

- ❑ The Prototype Steering Committee.
- ❑ Interview with key Project Management staff and incorporating ideas and configuration requirements in software design and development.
- ❑ MHLS-IT Website and Website updates.
- ❑ Survey of user responses to the software through desk side support and user surveys (Web-based only).
- ❑ Reports to senior management on the status of the prototype.
- ❑ Training of users, at which the concepts of Balanced Scorecard and Project Management tools can be reviewed.

The Prototype Steering Team will develop an overall communication plan to facilitate proactive, frequent communication between the core project team, other participants and executive management. The communication plan will include:

- ❑ A Kick-off Meeting with the Prototype Project Steering Team.
- ❑ An Initial Communications Meeting with the participants of the project including the MHLS-IT COTR and project sponsor.

- ❑ Weekly Status Reports.
- ❑ Weekly Status Meetings (Tuesday).
- ❑ Daily discussions between the USCG MHLS-IT Project Manager and the DICHROMA Project Manager.
- ❑ Frequent verbal communication of project status to the project sponsor and executive management.
- ❑ Periodic formal status meetings to the project sponsor and executive management.
- ❑ Formal review meetings with the core project team and project sponsor at the end of the major phases of the project.

4.4 Progress Reporting/Meetings

Progress reports on the status of the project will be completed each Friday by 1200 during the entire duration of the Phase 1 and 2 projects. The DICHROMA project team leader will author the progress report and deliver the report via e-mail to each Prototype Project Steering Team member, along with copies to the COTR and other project sponsors.

A Project Steering Team meeting will be held each Tuesday from 0900 to 1000 at the MHLS-IT office. This meeting will address the project status (activities completed, planned activities for the next period, resource issues) and the issues on the issues management list.

4.5 Risk Management

A project checkpoint meeting will be conducted after the first week to determine whether overall project objectives are being met. Areas discussed will include, but are not limited to, progress against planned milestones, budget status and performance.

4.6 Issue Management

To better track and coordinate issues arising within the project, an issue management tracking application will be used. The issue tracking application will contain a description of the issue, the author of the issue, the person assigned to resolve the issue, and a target date as to when the issue should be closed.

The issue management tracking application for Phase 1 may be a simple issue tracking application to be used primarily by the core project team. The application may be enhanced with future phases to provide additional functionality.

4.7 Scope Change Management

Proposed scope changes will be quantified in terms of impact to project schedule, cost and resource usage. Multiple scenarios will be explored to understand the consequences of accepting or rejecting changes in scope.

Version tracking will also be implemented with all documents covering Phase NO. Versioning will allow for all changes to a particular document to be tracked.

2002 Fireman First Class Paul Clark Boat Forces Engineering Award Presented

The first Fireman First Class Paul Clark Boat Forces Engineering Award was presented on 10 October 2003 to MK2 Martin Ratcliff of USCG Station Golden Gate. The presentation was held during the graduation of MK-A Class 01-04 at Training Center Yorktown. Captain Dean Lee of the Office of Boat Forces (G-OCS) acted as keynote speaker for the graduation and award presentation. The award was established to "Recognize the enlisted boat engineer who has demonstrated exemplary performance and superior technical, professional, leadership, and seamanship abilities in Coast Guard boat operations and engineering support."

Permanent plaques will be on display at G-OCS and Training Center Yorktown's Machinery Technician School.

MK2 Ratcliff joined the Coast Guard in September of 1993. Upon graduation from boot camp, he was assigned to the Coast Guard Cutter (CGC) MUNRO. He was Honor Graduate of his MK School Class in May 1995. He has been assigned ashore at Governor's Island, New York; Station Burlington, Vermont; and Station Golden Gate, California. MK2 Ratcliff is qualified on the 21' Rigid Hull Inflatable Boat (RHI), 44' Motor Life Boat (MLB) and 47' MLB. In March of 2002 he was released from active duty and joined the Coast Guard Reserve, then recalled to active duty in April 2002. In addition to earning the Coast Guard Achievement Medal, he was selected as Sailor of the Quarter on four separate occasions, and the Navy League Council's "Coastie of the Year" for 2001 and 2003.

Fireman First Class Paul Clark was awarded the Navy Cross for extraordinary heroism for his actions during the invasion and occupation of French Morocco in 1942. Fireman Clark took command of the landing craft after aircraft strafed the vessel and the coxswain was severely wounded. After withdrawing from the beach and evacuating the wounded crewmen to an offshore ship, Fireman Clark returned to the beach to complete the mission. A full account of the action and eligibility requirements for the award are contained in COMDTINST 1650.5.

CDR Thomas Jones, 2004

Coast Guard Engineer of the Year

CDR Thomas Jones (right), 2004 Coast Guard Engineer of the Year, stands next to RADM Erroll Brown (left), Assistant Commandant for Systems, during a curtesy visit to Headquarters on 15 January 2004.

CDR Thomas Jones, Commanding Officer, Civil Engineering Unit Providence, Rhode Island, is the Coast Guard Engineer of the Year for 2004. He was selected from a group of outstanding nominees, both civilian and military, throughout the Coast Guard. Selection as the Coast Guard Engineer of the Year made CDR Jones eligible for the Federal Engineer of the Year Award (FEYA).

CDR Jones was nominated and selected for his strategic vision, aggressive business planning and execution, and partnering, overcame significant challenges facing his command, including a 50 percent workload increase and a 10 percent personnel reduction. His most significant contributions were those he directly supervised to ensure national security in the wake of the 9/11 terrorist attacks. He made site selections and readied facilities on four key New England homeland security assets, surpassing aggressive Congressionally mandated deadlines. His community involvement and service accomplishments are also significant and led to his receipt of the 2003 Federal Employee of the Year "Bud Gifford" Leadership Award, given by the Rhode Island Federal Executive Council.

CDR Jones was recognized for his contribution to the Coast Guard during an award ceremony hosted by the National Society of Professional Engineers (NSPE) on 15 January 2004 at the National Press Club in Washington, DC. Coast Guard Commandant, Admiral Thomas H. Collins, and Rear Admiral (RADM) Erroll Brown, Assistant Commandant for Systems, congratulated CDR Jones for a job well done during an early morning visit to Headquarters on the 15th. RADM Brown later accompanied CDR Jones and his family to the NSPE luncheon where he presented Jones with the Coast Guard Engineer of the Year award.

This annual luncheon honors and recognizes Federal Government engineers and agency winners for their achievements in engineering and their contributions to the American public. We congratulate CDR Jones and all who were nominated for the "2004 Coast Guard Engineer of the Year."

U. S. Coast Guard

HomeLand Security

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